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Socio-economic Impact of Deforestation

“A Case Study of Village Utror, District Swat”



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DEPARTMENT OF ANTHROPOLOGY

QUAID-I-AZAM UNIVERSITY

ISLAMABAD

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Socio-economic Impact of Deforestation

“A Case Study of Village Utror, Kalam District Swat”

A Thesis submitted to the department of Anthropology
Quaid-i-Azam University Islamabad in partial
fulfillment of the requirement of the degree of M.Sc in
Anthropology



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*"BY THE NAME OF ALLAH THE MOST
BENEFICENT AND MERCIFULL"*

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Final Approval of Thesis

This is to certify that we have read the thesis submitted by Mr. Ikram Ullah. It is our judgment that this thesis is of sufficient standard to warrant its acceptance by the Quaid-i-Azam University, Islamabad for the award of the Degree of "M.Sc in Anthropology".

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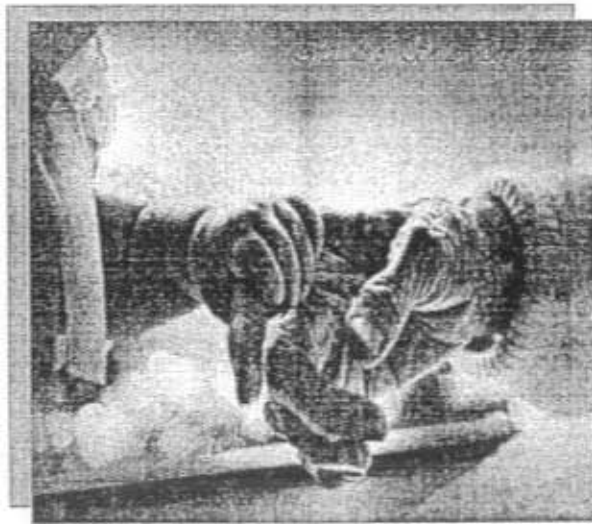
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DEDICATED TO



*MY LOVING & CARING PARENTS
&
MY ONE AND ONLY SISTER
(MAY GOD BLESS HER)*

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IKRAM ULLAH SWATI

Oh My Glorious Swat

Oh! My charming dale,
Where is your hypnotic tale?

Where existed plenty of grain,
now why every swan is in great pain?

Where existed clusters of trees,
why we breathe a polluted breeze?

Where cuckoo sang a melodious song,
Why the list of your sorrows is so long?

Where existed glistening of emeralds,
Why hesitated your lords?

All were friends far or near,
why peace is so dare?

Where existed a lot of sublimation,
Why Trouts feel suffocation?

Where existed Swasto's transparency,
why livers show deficiency?

We will destroy ourselves,
Because we hate ourselves,

Nature will remain,
In fact it is the defeat of wise man.

(www.swatvalley.com)

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Chapter # 1

INTRODUCTION

There is no universally accepted definition of deforestation. Various governments and organizations use different definitions. Deforestation can be defined broadly to include not only conversion to non-forest, but also degradation that reduces forest quality, the density and structure of the trees, the ecological services supplied, the biomass of plants and animals, the species diversity and the genetic diversity. (UNRISD). Narrow definitions of deforestation define deforestation as the removal of forest cover to an extent that allows for alternative land use. (FAO) (Revington, 1992.<http://www.fao.org>)

The United Nations Research Institute for Social Development (UNRISD) uses a broad definition of deforestation, while the Food and Agriculture Organization of the UN (FAO) uses a narrow definition.

Increasing population and decreasing resources are the most serious problems faced by most of the third world countries including Pakistan. At present lack of advanced technology the potential of scarce resources and the normative social pressure causes lot of changes in the present life of the people. Natural resources present in these countries either exploited or misused. Forest cutting (deforestation) in Pakistan is an example of this and particularly the mismanagement of the forest present in Swat.

According to the literature consulted, forests can be divided in to three types;

- 1) Reserved Forests.
- 2) Protected Forests.
- 3) Guzara Forests (Communal or unclassified).

(Sayman 2002, p.92)

Although the original forest area is not known precisely, it is estimated that the world has lost approximately 40 per cent of the original forest area of 6,000 million hectares over the last 8,000 years.

(Bryant, 1997, P.25; Laarman and Sedjo, 1992, P.42)

Most of the loss in forest area is a direct consequence of human intervention and scarcity of fuel wood, poverty and its more consumption in the 20th century.

Forest depletion is a complex problem, with roots in our socio economic and political scenario. Deforestation is thus the permanent loss of forests to other land uses such as agriculture, grazing, new settlements, infrastructure, and dam reservoirs. They represent an enormously valuable resource in terms of the diverse economic products, social and environmental services they provide.

At the present time, 14 to 16 million hectares of tropical forests are being converted each year to other land uses, mostly agricultural. The principal agents of deforestation are those individuals who are cutting down the forests include firewood collectors, slash-and-burn farmers, commercial farmers, ranchers, loggers, infrastructure developers and others. (*Shushuai Zhu, FAO, 1990*)

The predisposing conditions that favor deforestation include scarcity of fuel resources, poverty, greed, quest for power, population growth, indigenous knowledge, unbalance regenerations, low technology, land tenure, and illiteracy or unawareness of its impacts. The indirect causes of deforestation include inappropriate government policies, land hunger, national and global market forces, and the undervaluation of natural forests, weak government institutions, and social factors. The Socio-economic impact, scarcity of fuel and environmental consequences of deforestation are profound, making it one of the most critical issues facing our global society. The effect of deforestation on biodiversity and climate change has been the subject of many newspaper articles and television documentaries.

It has defied solution so far, despite many efforts at protection of forest and afforestation by Government and non-government institution working on forest. The reason for this situation is because such complex problems, as scarcity of fuel resources and other environmental problems complicated by many socio economic and political factors, cannot be solved by simple actions such as more plantation, or field patrolling by different organizations on government and non-government level. (*Encyclopedia of Social Sciences, 1968, p.12*)

In hilly areas of Pakistan like "Utror" Kalam Swat there are no major industries to provide people an opportunity to improve their socio economic condition or to use their raw material properly, this problem cause further difficulties like :-

1. People cut their trees for petty works like construction and as fuel use.
2. The economic value of the communal forests decreases.
3. The attitude of the people towards the use of the forest gets limited to squeeze their economic development and condition.
4. Forest is the major part of natural resources in hilly areas and people depend on them for their live hood.

The present study is an attempt to understand and discover the real causes of deforestation, the socio-economic impact of deforestation and the use of forest and its protection by local community and the government and non-government organizations in the study area. And to suggest ways that improve the socio-economic condition of the people of the study area.

1.2. BACKGROUND OF DEFORESTATION:

Deforestation has been practiced by humans for thousands of years. The earliest deforestation may have been the burning of the forest to create openings for wildlife and later, chiefly as a result of clearing land for growing crops, and developing pasture for grazing animals. While the earliest example of deforestation is unclear. "Deforestation has recently become a major concern for many countries in the world. It is one of the most pressing land use problems. Deforestation is occurring around the world on a scale never known before. More than 30 per cent of the world's forest is believed to have been deforested". (Litvinoff 1990, p.70)

Most of the damage is believed to have taken place during the last 45 years. Nowadays Deforestation is a burning issue in the developing countries, where high rates have been experienced. These countries are estimated to be losing about 11 million ha of forest annually.

The depletion of forests is of great concern for environment and many socio economic factors behind it in many developing countries, Pakistan in particular. Deforestation has affected the social and economic life of the people; deforestation also has affected

and destroyed the natural environment, affecting the quantity and quality of the water supplies they contain it is also a threat to global warming. In some cases, deforestation has resulted in unprecedented floods and loss of life. (World Bank 1992, p.15)

Scarcity of fuel wood and poverty caused by deforestation has also been a major problem to the majority of people because they cannot afford to use alternative sources of fuel. Deforestation is also the cause of exploitation of the developing countries by the developed countries.

1.3. DEFORESTATION IN PAKISTAN:

Deforestation in the regions that constitute Pakistan is not a recent phenomenon. However, it has accelerated in the past century, and, in the last 75 years, forest cover has decreased from 14% of the land area to 5.2%. Between 1974 and 1985, timber supplies from state forests declined by 45%. The greatest damage has occurred since the First World War. Efforts at afforestation and attempts at watershed management have not kept pace with increased demand and excessive cutting and overgrazing.

According to a survey on the fuelwood situation in developing countries, of the 2000 million dependent on wood, 96 million were already unable to satisfy their minimum energy requirement for cooking and space heating. A further 1052 million people were in a deficit situation and could meet their needs only by deleting wood reserves. Out of the total, more than 64% live in Asia. (ANON, 1981, p.23).

1.4. SIGNIFICANCE OF THE STUDY:

At present, one of the challenges facing Pakistan has been the alarming rate of deforestation being experienced in many parts of the country. Yet the rates and extent of the problem are still debatable due to paucity of reliable data and the processes involved are not clearly understood. As far as village Utror, Kalam Distt Swat is concerned, not many people are even aware that deforestation has become and continues to be a serious threat to the existence of the once rich forests. It is hoped that this study will highlight the extent of the problem so that appropriate steps could be taken before Swat also becomes a barren land like the other parts of N.W.F.P

Region. This study will improve forest condition in Swat and will create awareness among the people about conservation of their forest. Hope it will create a good relationship among the community and working organizations on forestry.

1.5. HYPOTHESIS:

Based on the review of literature and exposure to the research area, following Hypothesis has been laid down for testing during the fieldwork:

- ❖ Deforestation is taking place because no substitute is available for it.
- ❖ Deforestation has a direct impact on the socio-economic conditions on the entire community.
- ❖ Deforestation leads to many problems like Land sliding, flood, soil erosion, global warming, loss of Bio diversity, loss of eco-tourism and other environmental problems.

1.6. OBJECTIVES OF THE STUDY:

The main objectives of the study are:

- To investigate the impact of Deforestation on socio-economic conditions of rural mountain communities of Utror Swat District.
- To find out the real causes of deforestation in Utror Kalam Distt Swat.
- How these peoples are reacting individually and collectively to the problem?
- To document the management system of forest by the local community and governmental and non governmental institutions.
- To suggest ways for using alternatives in the study area.

1.7. LITERATURE REVIEW:

Forest plays a vital role in improving the economy of an area besides providing clean and healthy environment to the inhabitants. Trees add beautification to the land and an attraction for the tourists besides this it also protects land from calamities.

The mountain forests of an area are important for the communities residing in their vicinity as they depend heavily on forests for their daily life. Forest protects their fields and habitation from floods and land slides, provide timber, fuelwood and grazing, gets their traditional medicines and provides food, fodder and forage, to meet their daily needs.

So the people living in the areas surrounded by forests in the hilly areas extract their livelihood from forest as; "Forest enables its inhabitants to earn additional income through employment or collection and sale of non wood forest products such as morels and medicinal plants". (Lavador, 1991 : 32)

Forest has a considerable potential for premising the economic development of mountain areas through eco-tourism, improved collection and marketing of non wood forest products and appropriate management of suitable forests for timber yield. The wooded mountain comprises several important ecosystem of an area with their own distinctive flora and fauna, whose proper functioning is essential for the survival of human communities at their current level and any disturbance like forest depletion would harm this proper functioning of life. "Forest depletion in the mountains would previously disrupt the functioning of the ecosystem and reduce the carrying capacity of the mountains for all life". (Albert, 1994 :106)

Forest depletion by a community in their own areas has many reasons like poverty, fewer alternatives for subsistence, more economic gain and power etc. These mentioned factors coupled with others limitations of community causes deforestation. Like many mountains have a strong cast and ethnic groups. To one of the main cause of forest determination is also a disbalanced regeneration process as this is process is mostly ignored and the main reason of vanishing forests from most parts of the world is that , more trees are not planted than are being cut.

"The regeneration process is not noticeably absent in most of the forest, especially the temperate which comprised the bulk of forests. Unless regeneration is adequate,

Poverty of the people residing around forests is the root cause of forest depletion. Even when the damages caused by powerful vested interests, trees are still felled, cross cut, and loaded into trucks by the local people in order to earn wages. If the economic conditions of the mountain folk could be improved, they would have less cause for participating in the liquidation of the resource on which they subsist in time they could even be built up as a strong bulwark against forest marauders. The improvement in the economic conditions of the mountain people would be sought through different measures.

Deforestation means different things to different people. For some it means the total clearing of trees; for others it is any activity which disrupts the natural ecology of the virgin forest. In this regard, change can range from patchy slash and burn cultivation followed by partial regeneration, to complete clear-felling over large areas. Basically, this confusion is a matter of terminology, but it has created a lot of problems in trying to compare different estimates on the extent and rates of deforestation. In addition, lumping together all the activities which disrupt the forest ecosystem and regarding them as deforestation obscures the real issues. (Timberlake 1991, p.192)

The problem of deforestation in general needs to be looked at in a broader perspective. While single causes of deforestation may be identified and analyzed, local interactions are inevitably far more complex than a simplistic overview suggests. The process of deforestation is derived from the entire pattern of world development since the colonial era, and the economies of most developing countries demonstrate a number of parallels that contribute to a greater or less extent to the deforestation process. (Palmer 1992, p.81-93)

There has been much concern about the pressures that population exerts on world resources and the environment. Many people blame the serious problems of deforestation in the developing countries on the growth of population. The fact that population growth increases pressures on forest resources cannot be ignored. Population pressure, particularly in the closely-settled areas, has forced the extension of agriculture into forest and even fragile and marginal lands and increased the demand for fuelwood, setting in motion a downward spiral of forest destruction. However, deforestation is a complex problem, and rapid population growth alone may

not explain the rapid rate of deforestation experienced in Tanzania and in many other developing countries. (Allen and Barnes 1985, p.163-184)

The energy needs of the world, especially in developing countries are fast expanding due to increase in human population, improvement in living standards, development of transport, communication and industrialization. The reserves of fossil fuels are limited and are diminishing due to their constant and heavy use. This will ultimately result in their complete exhaustion.

Therefore, new and renewable sources of energy will have to be looked for to meet the energy needs of the world in future. (Siddique, 1997, p.123)

In developing countries, about 80% of the fuelwood is obtained from designated forest areas while a remaining 20% is being obtained from owned sources.

(ANON, 1986, P.23)

In hilly areas, fuelwood is the only major source of energy for domestic purposes.

(Negi et al 1986, P.65)

According to the World Rainforest Movement, 25% of medicines come from the forests and we are loosing this by means of deforestation. The forests give life, not only to other species, but they help to prolong the human race.

The most affected areas of wood shortages are arid and semi-arid areas and mountainous areas of the world. The fuelwood deficit often occurs in areas like densely populated low lands and in areas where population is rapidly increasing. Many developing countries of Asia, including Pakistan, are facing such a situation.

(ANON, 1986, P.23)

Like other developing countries, Pakistan is experiencing a rapid increase in its energy consumption with increasing population and economic development. The country is poor in forest wealth. The primary reason is, about 70-80% of the total land falls within arid and semi-arid zones with low precipitation to support tree growth.

(Ali, 2001, P.99)

Deforestation has been a major problem in the study area since the past. Ever increasing human population, increasing demand for forest and tree products for livelihood, increasing demand for agricultural land, new settlements and shifting cultivation have been major contributor of deforestation in the area. This has led to fuelwood and fodder shortage that places the very survival of the poor in jeopardy.

With the declining forest cover there is a growing demand for forest products and services among the rural communities. In such a situation the importance of trees is emerging as a solution to address many rural livelihood related issues and problems.

(Ali 2001, P.77)

Beside that, the most practical courses of action are to improve availability and lower prices of intermediate fuels like kerosene and LPG (natural gas). This will help to mitigate fuelwood scarcity and in preventing natural forests deterioration

(Leach, 1987,P.31-38)

The forests have global implications not just on life but on the quality of it. Trees improve the quality of the air that species breathe by trapping carbon and other particles produced by pollution. Trees determine rainfall and replenish the atmosphere.

The economic and environmental consequences of deforestation are profound, making it one of the most critical issues facing our global society.

Pakistan is also one of them especially the province of N.W.F.P Distt swat, Dir and Chitral are affected in which swat is the most affected by deforestation. This region has been contaminated with deforestation since the wali swat period as he tenure the land among the people of swat in traditional wesh system.

(Sultan-i-Room, 2005, P.25)

Villages in Swat are basically agrarian in nature. The people extract their livelihood from agriculture and forest landholdings are small and inadequate to meet the growing demands of the people. In these circumstances people have to seek other sources of income as the farming is an insufficient means of subsistence. These sources are found either locally or outside the area. The only supporting economic asset in the hilly areas of swat is forests.

As the area of Swat, on the whole, remained thickly forested since early time, this is also evident from the statement of Chinese Accounts of India; "The forests are thick and shady, the fruits and flowers abundant." (Hiuen Tsiang 1958, p. 166).

Whereas according to *Macgregor*, "Swat is famous for its timber, rice, and honey, all of which are exported to Peshawar. (Macgregor, 1873, p. 151)

But the People use the forest wood and exploiting their wealth for petty purposes like house construction and consumption of firewood because no substitute is available.

This is a great wastage of these forests for both the local people and the nation as a whole.

The purpose of the study is to find out the effects of deforestation on socio economic condition of the local people.

SOCIO-ECONOMIC IMPACTS OF DEFORESTATION:

Deforestation should be considered primarily as a social and economical problem. The first human group to suffer the consequences of deforestation is often the indigenous people who live in the forest and get their sustenance from the forest. This phenomena not only deprives them of their land , but also it may cause sickness, death ,extinction , suffer from soil productivity, scarcity of fuel wood , adverse environmental effects caused by deforestation such as flooding , drought or water shortage accompanied by health hazards.

The appraisal of the socio-economic consequences generated by deforestation is a complicated one. In addition to the inherent complexity of the deforestation process balancing its social benefits against its social costs is jeopardized by the fact that they are not equally distributed either in the time or space. Moreover, people who might be affected by deforestation may be different from those who benefit from it.

However, it is often assumed that deforestation caused more social and economic costs than benefits. The following is a summarized list of the potential problems created through deforestation;

- Reduction of genetic resources through depletion and extinction of plant, animal and microbe species is a growing threat.
- Acute local or national shortages in the wood, timber and fuelwood supply are caused by deforestation in several developing countries.(FAO , 1985)
- Acute scarcities in supplies of meat from wild animals, of edible fruit and fungi, rattan, bamboo, oils, waxes, gums, resins, spices, balsams, medicines, drugs, dyes, pharmaceuticals and other non-wood products will be created by deforestation.
- The denudation of the watershed upland forests leads to deep changes in the hydrological regime of the area. It often produces shortages of good quality water for urban centers, lack of regular supply of irrigation water for downstream farmers and even droughts and flooding during the rainy seasons.

- Losses of soil productivity are dramatic. A direct effect of losing the protective vegetation cover is soil degradation and erosion. The loss of fertile top soil has been estimated at 6000 million tons per year. (FAO, 1979).
- Several diverging opinions have been expressed concerning the influences of deforestation on the carbon cycle of the biosphere, especially on the carbon dioxide content of the atmosphere, and hence of the world climate at the micro and macro levels.
- Due to development deforestation occurs which leads to disturb their norms, values and traditions.
- Trees play an important role in the beautification of an area due to which tourism increases but due to deforestation tourism decreases which affects the economy of the local people.

(Palo 1987, P.112, Merry and Salmi 1991, P.228-229-230)

The depletion of forest resources in Pakistan is of great concern for environment and development. It is affecting not only the economy of the country, through negative effects on agriculture but also the health of the people. It is undermining the potential for sustainable development. Therefore, efforts need to be made to reverse the trend.

1.8. METHODOLOGY:

There are many techniques for collecting data in Anthropological research. I used multiple techniques so that to collect more reliable and qualitative data. Some of the techniques which I used during the field work to collect data are as follows;

1.8.1. SELECTION OF THE LOCALE:

The research was conducted in the area of Utror Tehsil Kalam, Distt Swat. I selected this area for the following reasons.

1. I am familiar with the area which is badly affected by deforestation and these people can speak and understand Pushtoo.
2. The area Utror is surrounded by forest.
3. People mostly rely on forest for extracting their livelihood and for fuel wood because of the scarcity of other forms of energy.
4. Deforestation is taking place through illegal wood cutting.

1.8.2. ESTABLISHMENT OF RAPPORT:

Establishment of a good rapport with the community was my first task as it has a prime importance for a good fieldwork. It helped me to move freely among them and collect the required information. Establishing good rapport is, though, very difficult task but at the same time very necessary to get valid data.

After entering in the field, I established a good rapport with the local community through my hosts and long residence in the community. Soon after my 1st entry, my friend M.Tufail received me there and took at his house. He belongs to ponder khel. He did his M.A in Social Work from Peshawar University. His father is a P.T.C teacher two brothers are shop keeper and two are farmers. So he is deep rooted in the locale with respect to interaction and social relationship. The repute of his family as noble one helped me to given proper response before every respondent as I was perceived as a guest of a respected family. He introduced me at Hujra, Mosque and Bazaar. His shopkeeper brothers helped me to get introduced and accepted by the people at bazaar which is permanent center of social gathering in my locale. They helped me in identification of the people to whom I can talk at initial days. After that I used to go to their bazaar, Hujra and mosque and discuss with them the topic of my research and by this way, I built rapport in the community it also helped me to select my key informants. Because of this establishment of good rapport with them caused to clear their suspicions about my identity and nature of my work. Establishment of a good rapport helped me to get reliable and required data easily. For good relations and report with community, I was open minded, transparent, responsive, communicative, and friendly to all my respondents as well as community members.

1.8.3. SAMPLING:

As it is impossible for a single researcher to study, observe and interview the entire community member. After getting base line data of the community, this method was applied for in-depth study of the research area.

I select people in my sample from all the Mohallas and different caste of the village so that to select a representative sample of the community. For this I used random stratified sampling method to provide an equal opportunity to each and every member of the society. There are seven different castes in Utror and the total population of the village Utror is 6,200. I select 100 respondents equally from each caste on the basis

of Caste population, their education, economic status and on the basis of their occupational differentiation.

Table 1.4 Sizes of the Sample and Total Population

Total population		Selection of sample from each Caste					Sample population
6,200		↓					100
↓	↓	↓	↓	↓	↓	↓	
Sanger khel	Punder khel	Juger khel	Usoch khel	Jalal khel	Coten khel	Langer khel	
17	18	15	15	10	15	10	

1.8.4. PARTICIPANT OBSERVATION:

Participant observation, which is used in informal setting, is an important method in anthropology. This method gives the researcher an opportunity to collect qualitative data of descriptive nature. Once the local barrier against outsiders is lowered the researcher can get more qualitative and valid data.

Malinowski also stated that,

“The anthropological field worker should totally immerse in the lives of the people; and that can only be done through months of residences in the local community. Residence in the research community ensures that the fieldworker observes daily life and activity enacted by the people who have relatively in different to and unabashed by the presence of a foreigner” (Malinowski, 1964, P.181)

It helped me in establishing rapport with the community of the area. Also this technique was not only helped me in the rapport establishment, making interview questions and data collection but also to evaluate and analyze the data collected by other methods. I used this technique throughout my whole research. It not only helped me to get native's point of view, and evaluate information's collected by other method's but also helped me in preparing interview guide for in-depth interviews. I observed their housing patterns, dress patterns, cutting down of forest resources and people's behavior towards deforestation etc.

under research. This is a very simple anthropological method which was applied by me to collect data. There are various types of interviews and the relevance of its applications in the field depends on the nature of research one is conducting, an interview is thus an oral type of questionnaire in which the interviewee gives the needed information in a face to face relationship.

I formulated an interview guide containing questions regarding the objectives of this study. Most of the questions were unstructured and open ended, but certain questions were structured. These unstructured questions were designed for specific persons after having informal discussions with them.

1.8.6.1. QUESTIONNAIRE:

I developed a comprehensive questionnaire to record life histories of the deforestation of the forests in the study area. I tried my best that it must cover every aspect of the life which is affected due to deforestation i.e., as an individual and as a member of his community. There were direct and indirect questions on almost relating to all the delicate problems of deforestation. The technique of indirect questions was employed because in it there are less chances of the subject being dishonest in his responses.

1.8.7. FOCUS GROUP DISCUSSION:

Focus group discussion was used for gathering data from a group of people. Group discussions also provide me very useful information about deforestation. These discussions were important in the sense that information about the same topic was collected from different people at the same time. For this purpose small groups of the community were selected from time to time in order to generate discussion of certain topics to get collective opinion or shared views of the villagers during a formal interview a person becomes conscious, but during such kind of discussion people express their views more freely since no one is being focused. Moreover such discussions are unstructured therefore result in free flow of information. I used to throw a topic of common interest of the villagers impacts of deforestation, causes of deforestation, consequences of deforestation etc and then they discussed with me on that particular issue as well as other issues concerning to it.

1.8.8. PHOTOGRAPHY:

Different situations of wood cutting and the illegal methods applied for doing so was photographed for achieving the factual position and to keep the record of observations

about the community. Especially the whole range of forestry and deforestation process was photographed to make data more factual and perfect in presentation.

1.8.9. RATING AND RANKING:

I did Rating and Ranking of the community members with the help of key informants and with the help of interview with other people and by means of socio economic form. This technique was used to find out the influential individual and groups. By this method I became able to know the socio economic status of the community members and their influence by each others.

1.8.10. DATA ANALYSIS AND REPORT WRITING:

In this technique after collecting the Data I used tables and diagrams of different things, I separate the qualitative and quantitative data, and in the end I wrote a report on the data that i have collected during my field work.

1.9. SECONDARY SOURCES:

The following secondary sources were also use for data collection.

1. Forest department records e.g. The NWFP forest ordinance, 2002, and Govt of NWFP forest policy and community forestry hand book.
2. NGO'S reports on the forestry in the hilly areas of Pakistan for a comparative study. E.g. Kalam integrated development project govt of NWFP department of Forests, fisheries and wild life. Mountainian area conservancy project by IUCN.
3. Internet surfing.
4. News papers.
5. Study conducted by Forestry team from time to time.
6. Census Reports of District Swat.

Chapter # 2

VILLAGE PROFILE

2.1. HISTORICAL & PHYSICAL FEATURES OF THE VILLAGE

2.1.1. HISTORY OF THE VILLAGE:

There is no official record available about the history of the village and no one has exact knowledge about the history of Utror. But this charming valley a peaceful and fascinating tract in the lap of vegetative sky-high mountains, with eternal snow of their lofty crests, is an everlasting source of attraction for the visitors. There are several mountain peaks ranging from 4500 to 7000 feet some of them are permanently under snow. Its beauty attracts tourists from all over Pakistan. Swat is historically an important area. Its rich archeological treasure is testimony to a glorious past. Its serene natural beauty, abundance of water, forest, wild life, good agriculture and grazing land and its strategic position provided a good milieu to nurture civilizations.

(Abdul qayum Balala, 2000, p. 08)

Alexander came here in 327 B.C; Gandhara Civilization reached its zenith here; and Mahmud of Ghazna's forces invasion of Swat in early 11th century A. D. brought the area under the fold of Islam. Pukhtoos of different tribes gradually occupied the region a thousand to eight hundred years ago who were subsequently driven out by Yousafzai Pukhtoos in the 16th century who live here ever since. It was only in 1917 that the grandson of Akhund of swat Miangul Shahzada Abdul Wadood founded the state of swat, which was officially recognized by the british government of India. In 1969 Swat State, along with the two princely states of Dir and Chitral, was merged in Pakistan and was made a district of the Malakand Division of the North-West Frontier Province of Pakistan. (District census report of Swat 1998, p.8)

When the princely states of Swat, Dir, and Chitral were merged in Pakistan in 1969, the people were exposed to a centralized departmental way of governance. It was difficult for the people to understand the new system while the government's functionaries remained

distant from the people. This new situation created a gap between the people and the government. Poor planning, lack of good governance, increase in population and migration to the region further aggravated the situation. This resulted in the degradation of physical, social and cultural environment of the region. Excessive deforestation, unplanned expansion of human settlement in urban and rural areas, pollution of water bodies, mismanagement of land use, increased violence and insecurity are some of the visible results.

2.1.2. LOCALE OF THE RESEARCH:

The village of Utror is situated at the confluence of Utror and Gabral rivers. It is 16 kilometers to the west of Kalam main bazaar, 116 km from Saidu sharif and 276 km from Peshawar. The village has population of 6,200 with having a growth rate 2.5. (Key informant). In village Utror there are living seven khels (sects or tribes) i.e. Punder khel, Usoch khel, Sanger khel, Juger khel, Coten khel, Langer khel, and Jalal khel. On the north-east this village has boundary with Gabral village while on the south-west the boundary of the village is touch to the Tehsil Kalam.

This green and beautiful area is the village of Kalam tehsil of District Swat. Kalam is situated in the north-west of NWFP, and it is surrounded by Valley Swat which is almost called the Switzerland of Pakistan. The height of Utror is 7,300 feet above sea level so it is very pleasant zone in summer. The tourist come to this area in summer season because of its beauty and will furnished hotels. (Abdul qayum Balala, 2000, p. 99)

The village understudy falls in Kalam, District Swat in the North West Frontier Province (NWFP) of Pakistan. It has two boundaries, one is the administrative boundary which separates it from the Dir kohistan area and the other touches Kalam bazaar. In 1976 the right bank Indus Kohistan was separated from Swat District and was made part of the newly formed Kohistan District. Later on Buner and Shangla were also separated from Swat District in 1995 and 1997 respectively and were made full-fledged separate districts. Swat District lies between 34°-13'-55" and 35°-53'-40" north latitudes and 70°-47'-15" east longitude in the former Malakand Division of North-West Frontier Province

of Pakistan. The area of the present day Swat District is about 3798 sq. km with a population of 1.249 million. (District Census Report of Swat, 1998)

But this beautiful area of swat is badly affected by deforestation. As these people are fully dependent on the forest resources therefore these people are mostly involve in the process of deforestation.

Plate: 2.1. A view of village Utror



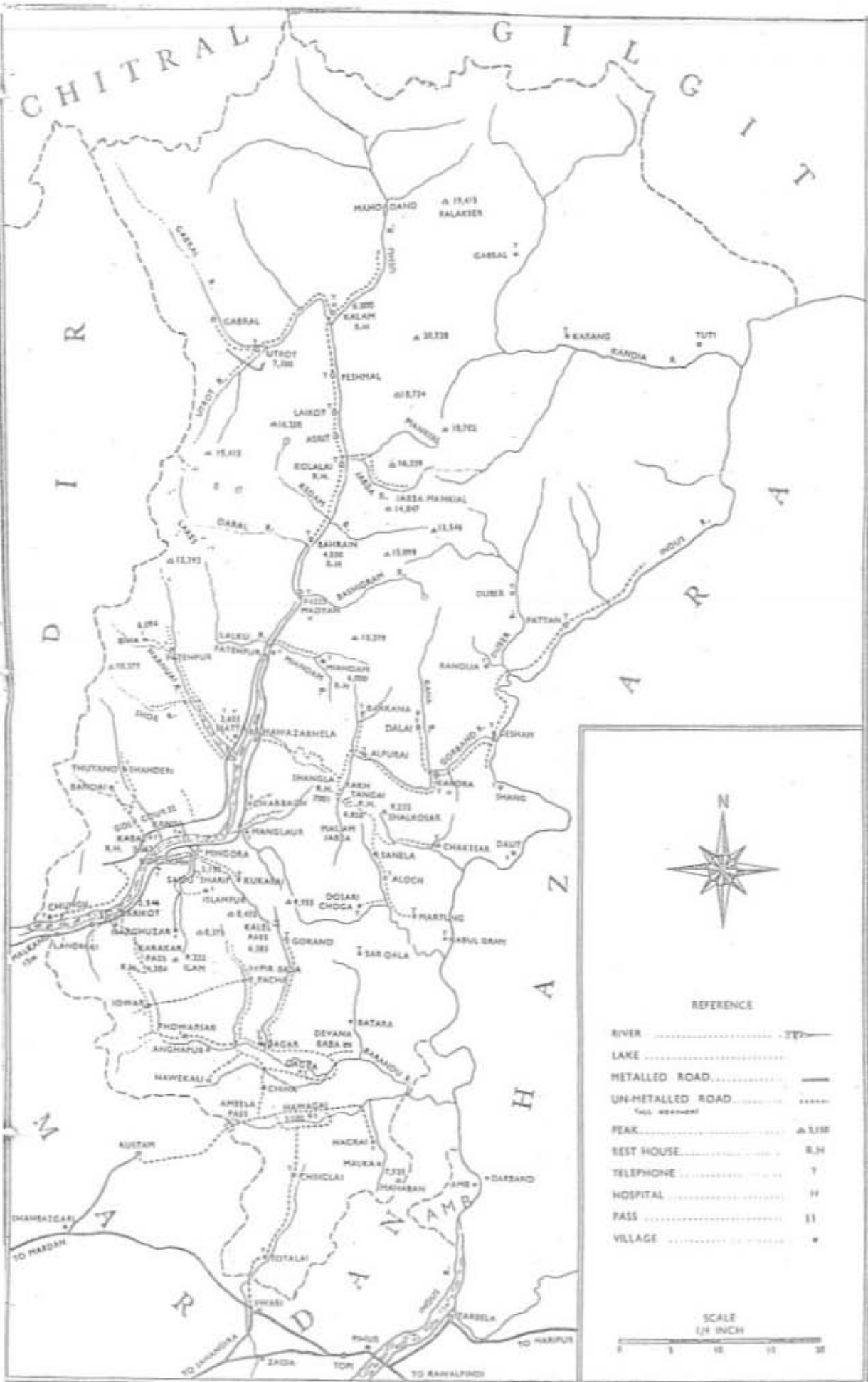
2.1.3. ADMINISTRATIVE DIVISION:

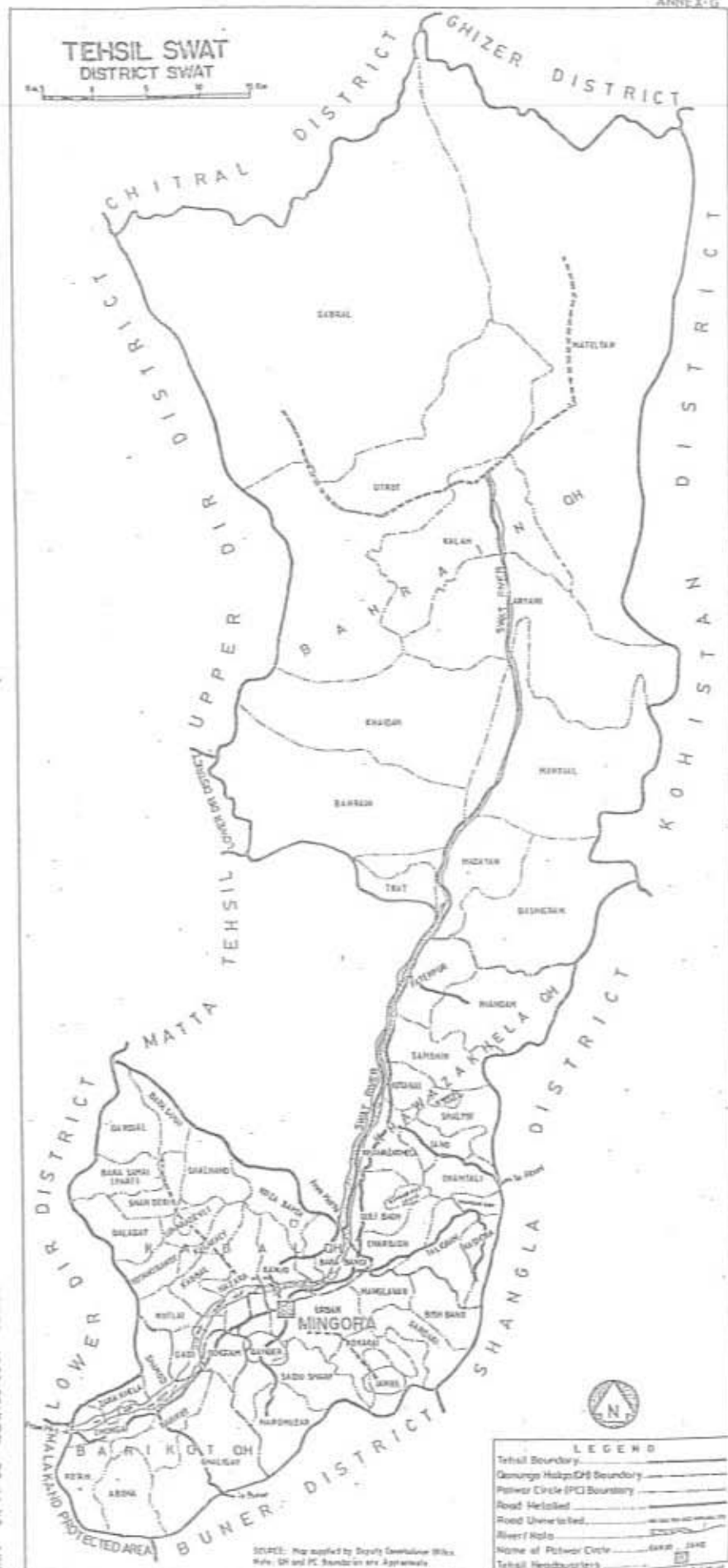
District swat is under district Nazim and district coordination officer according to the new setup under the devolution plan of 2001. The forest administration of the area lies with Department of Forest N.W.F.P. there are two Offices of District Forest Officer (DFO) one is situated in Mingora which control the Forests of the lower Swat and the other is situated in Madiyan which control the Forests of the Swat Kohistan and upper



Source: Election Commission of Pakistan (ECP) • Provincial Assembly Constituencies, Districts & FATA

SWAT GUIDE MAP





PC/PFI-4282(99)PCO-22-1:99-600

NOTE: Map supplied by Deputy Commissioner Swat.
Note: GR and PC Boundaries are Approximate

Swat area. Utror forest range is under the control of Madiyan forest officer. There is a joint forest management committee (JFMC) in Utror which handle the cases over illegal wood cutting and with the coordination to forest magistrate handle the dispute over forest among the different khels in Utror. District forest officer visit each year and established or make a camp which is called "Camp Court" in which the cases of illegal wood cutting are handled and he decides program for future plane of the forest. But the people are still involved in the process of deforestation because there is no proper revenge manner to stop these people from deforestation. The more deforestation in the study area is occurred because of the weak policy of the Forest Department.

2.1.4. MOUNTAINOUS RANGE:

Swat is lying in the lap of mountainous ranges, which are the offshoots of Hindukush, so the larger part of swat is covered with high mountains and hills, the crests of which is hidden by everlasting snow. Though these gigantic ranges run irregularly some to the west while the other to the east, but the general direction is north-south. In Kohistan Swat the chief knot of eastern ranges is mankial. Its northern branches separate kohistan swat from Abasin kohistan. These ranges form a barrier between Gilgit and Swat, and between Chitral and swat. The southern extension of mankial ranges reaches proper Swat. There they join Shangla ranges. Shangla ranges separate proper Swat from Shangla District. Utror area is fully covered by the high sky mountain which were fully covered by thick forest but nowadays the deforestation is start in such a high rate that these fully forest covered mountain are converting toward non forest mountains.

2.1.5. CLIMATE:

This village has distinct seasons marked by wide variation in temperature. The area has different climate. The winter season begins in November and lasts up to March. The winters are extremely chill and cold and mostly temperatures plunges below freezing point. December, January and February are the coldest months. The mean maximum and minimum temperature in these months are in the range of 0 to -15 degree Celsius and the area is fully covered by snow fall with a high range from 10 to 15 feet's during these months. The summer season lasts from May to October. June, July and August are the hottest months. The mean maximum and minimum temperature in this period is in the range of 10 to 20 degree Celsius. (District Census Report, 1998, p- 2). Through out the

year, the village is laying in the temperature zone in the northern mountainous ranges of the indo-pak subcontinent; therefore weather is affected by all the climatic factors latitude, altitude and rain bearing winds. In summer the village comes under the influence of the monsoon, while in winter, it is affected by the cyclonic current from the Mediterranean Sea.

These people generally enjoy the season of summer because in winter season due to high snow fall, lower temperature these people can't get out of their homes and they have nothing to do in this season except to set around the fire in their Hujras and are busy in their local games like *Tash* (Cards), Karim board. These people collect their eating material at the start of the winter season and collect a lot of trees for bon fire and bushes for their animal which they use through out the season. They faced difficulties in walking from one place to another place therefore mostly people migrates to mingora in winter seasons.

But as the summer season starts these people comes out of their homes and the winter migrated people also come back to their own village in summer, because in summer the weather is not so hot as in the other parts of Swat District. The summer season is very pleasant in this area. The tourist comes here to enjoy this season form all over Pakistan. In summer these people go to the forest and collect trees for their domestic needs they construct new houses in this season also use the forest wood for other uses as for furniture and for smuggling. So the more deforestation occurs in the summer season. This is the only season in which these people cultivates their fields and collect their revenue form agriculture.

2.1.6. STRUCTURE OF HOUSES (DWELLINGS):

The village physical layout does not follow symmetry or arrangement rather is scattered and haphazard pattern. There are no proper streets and drainage system in this village. There are three types of houses constructed in this village, Kacha (squatter), Kacha pacca and pacca (stone and cement). Majority of the households are Kacha pacca (stone, cement with steel roof) or pure kacha. Pure pacca households are only 3 % and are very rare. Kacha houses are constructed with stones, mud and wood. Houses are built in a straight horizontal line, stone extracted from the nearby hills or lands are used in house construction. Generally the houses are called kore (house). A house generally consists of

two or three rooms with a verandah in the rear and front and a opposite v type shape of teen is placed on the top of the roof to protect their houses from snow fall. Normally nuclear family system is in vogue in the area. Every cluster of houses has a common sitting place Called 'Hujra' where the male members daily meet, discuss and share views on a variety of local, national and international issues . It is a common place and is also used as a guestroom. The young spend winter season or the occasions of happiness specially marriage in Hujra and arrange music programs or dishes as a pass time activity. It is important part of Pukhtoon culture which is changing with passage of time as people have begun to prefer using personal guest-room.

Table No 2.1 Showing percentage of house type

S. No	Type of house	No. of houses	Percentage
1	Pacca	130	16.25
2	Kacha Pacca	370	46.25
3	Kacha	300	37.5
4	Total	800	100

As far as deforestation is concerned the families are converting toward the nuclear family system therefore these people construct new home for themselves. They construct and arrange their houses from wood. All of the houses are made of wood or they use a large number of wood in their houses construction, they use wood in the walls of the house, and the roof of the houses are fully made of wood also they decorate their homes with beautiful furniture. They use a large quantity and quality wood i.e. Diar wood in the house construction normally they use 60 to 80 trees wood for the construction of a new house. They use wood in their house construction from *Parvai* (ladder, steer) to the *Chat* (roof) each and every thing is made of wood. Also their mosques, shops and Hujras are

made of wood. Mostly the Diar wood is used for construction which has a great commercial value in the market.

Plate: 2.2. Structure of hoses in village Utror

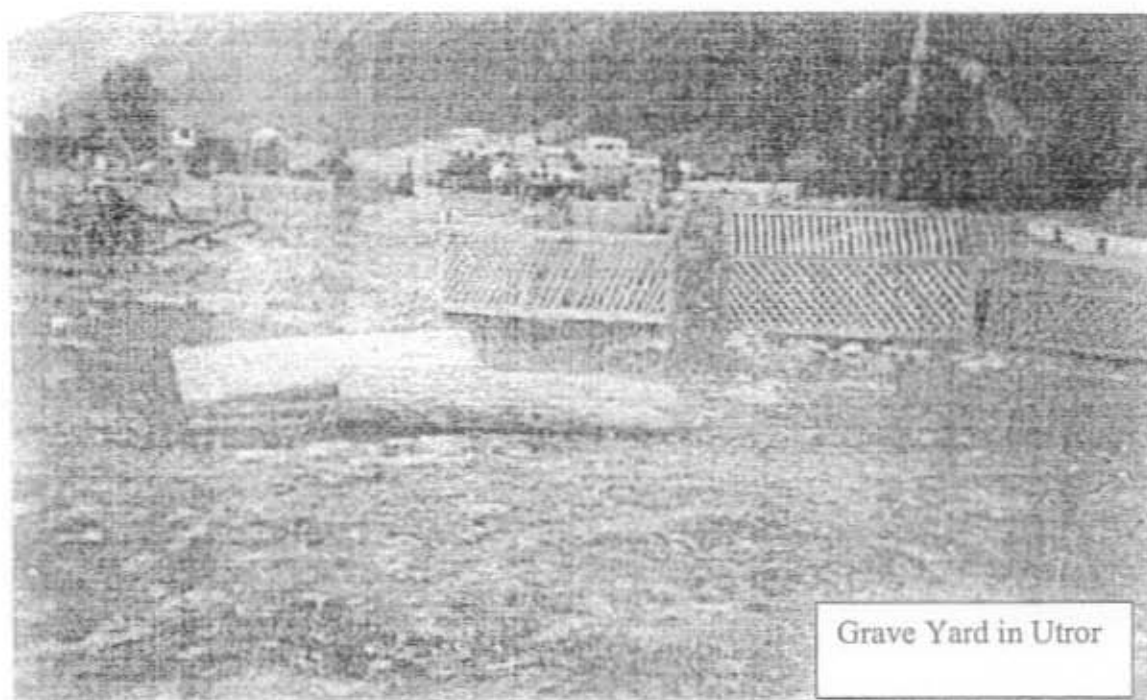


2.1.7. GRAVE YARDS:

There are 2 *Moqbara* (graveyards) in this village. Area is hilly and houses are far from each other, but the villagers have their own graveyards far cluster of houses and they have two graveyards for their respective cluster of houses. People buried their deceased in these graveyards. Both of the graves are Kacha type. People visit the grave of their relatives especially on Eid morning. Women visits before Eid prayer while men after Eid prayer.

The above picture shows the grave yard in the study area. As for deforestation is concerned each and every *Qabr* (tomb) is surrounded by wood with a special type of structure. Since there happened extreme snow fall in Utror hence most of graves go down in the earth. It becomes difficult for these people to recognize any *Qabr* after its collapse. Owing to this most of people erect wood structure around their respective grave in order to safe it and to keep it a trace for recognition of their relative graves.

Plate: 2.3. A Grave Yard in village Utror



2.1.8. TOTAL NO OF TREES CUTTING PER YEAR:

Socio-economic survey comprised of 75 people. The statistics are shown below in the table. I calculate the number of trees cutting per year on the basis of socio economic census survey form.

Table 2.2: Season-wise Table of deforestation activities

S. No.	One house hold	No. of deforestation		Total no of trees/year
		Summer	Winter	
1	Nuclear Family	150 maunds	150 maunds	4 trees
2	Joint Family	300 maunds	300 maunds	6 trees
3	Average	225 maunds	225 maunds	5 tree/family
4	Total no of household =800	225*800= 180,000 maunds	225*800= 180,000 maunds	5*800= 4000/year

Source: Own Research

The above table shows the season wise analysis of deforestation in the area. I have selected and interviewed 75 persons one the basis of equality of ethnic composition.

The percentage of house holds wise show the rate of deforestation in the Utror area. This table shows that the average number of trees which are being cut down for different types of uses is 4000 trees per year. Most of the females helps their male members in the deforestation activities also these female works in the agriculture fields.

2.1.9. FLORA AND FAUNA:

According to the local people, in the village Utror some times back, there were thick forests but with the rapid increase in the means of communication and population, the number of trees decreased considerably. Currently, most commonly found trees in the area are Diar, Chir, Fir, Spruce and Qercus. These forests do not only ad to the beauty of the area but also play an important role in the economy of the area. Wood is a major source of cooking, fuel wood especially for habitations of the study area. Various species of botanical plants, Medicinal herbs characteristic of different altitudes also found in Utror.

The fauna of the villages consist of Duke, Partridge, Chakor and Pheasant, the wild mountain sheep (Markhor) is found in the high region on the mountains Bear, Panther, Musk deer, Golden fowl, black and brown Bear are also found.

Deforestation affects both the flora and fauna of this village. The villagers use wood and wild bushes in order to fulfill their domestic needs while collecting the bushes or cutting the trees, but these people do not take care of the trees and newly cultivated small trees and plants. This behavior automatically affected the flora of this village. This deforestation not only affected the fauna but, according to my information the locals and informants it also affects their field, there houses in the shape of floods. Along with this deforestation also affects their natural environment and leads soil erosion, floods, natural calamities and global warming etc.

2.2. SOCIAL OR GANIZATION OF THE VILLAGE

2.2.1. ETHNIC COMPOSITION (WHOLE DISTRICT & VILLAGE):

In swat district there are four main tribes, the Yousafzai pathans, kohistani, Gujars and Ajars. The pushtoo speaking Yousafzai pathans are the direct descendants of Afghans of Mehmood Ghaznavi. However Yousafzai occupy on a large area i.e. the area of lower Swat. The other Pathans of lower swat are composed of the Mulan, Pukhtana, Syed, Paracha etc. The kohistani and Gujars who speak their dialects Gujru and Kohistani are inhabit in the mountainous areas up north. These people are settled in and around Kalam, Ushu, Utror, and Gabral valleys. While the people of the Utror who are Kohistani are sub divided into seven khels as; Punder khel, Usoch khel, Sanger khel, Juger khel, Coten khel, Langer khel, and Jalal khel.

While the Ajar are the nomadic people who live in the mountainous area in the summer season while living in the plain areas of swat in the winter season, these people can speak and understand pushtoo language also.

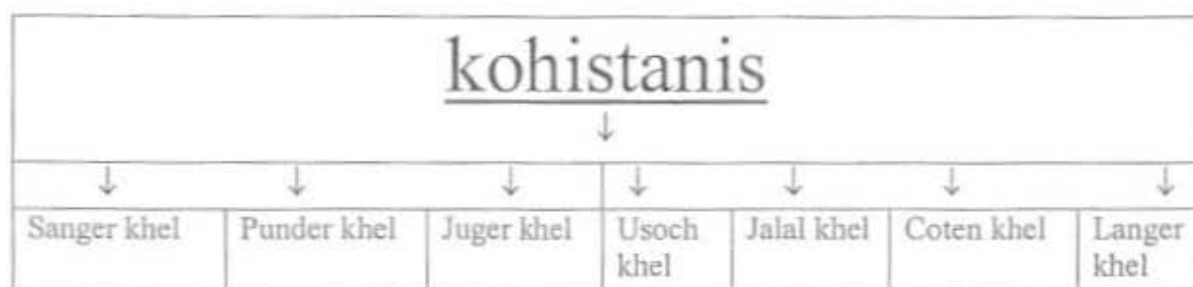
Following table will show better the above division:

Ethnic Composition in Swat				
↓	↓	↓	↓	↓
Yousafzai	Gujars	Ajars	Kohistani	Others

Swat district is geographically divided into three areas based on valleys:

1. Lower Swat
2. Upper Swat
3. Swat kohistan

The area (village) under research falls under the Tehsil of Kalam. Kalam Tehsil and village Utror are occupied by the kohistanis. Kohistani live here since before the arrival of Yousafzai pathans these kohistani people speak kohistani language but they also can speak and understand pushtoo language because these people has having trade with pathans in mingora city. This kohistani tribe is further sub divided in to others sub sections as well which will be discuss and shown later in the diagram.



The local people provided the details for the above diagram. According to them all of these khel comes from different areas and settle over here since long. Sanger khel, Punder khel and Coten khel are in majority and mostly maliks

Firstly the royalty was distributed among the khel so Sanger khel, Punder khel and Coten khel has having equal part in the royalty as like to the other khels but these three khels were in majority in numbers so it was not an equal distribution of royalty therefore they conquered with the rest khels which are in minority in numbers. So this case was resolved by the forest department and now the royalty is distributing among the male members of each khels. Since the forest area is not divided among but it is a shamilat land therefore when the person of one khel cut down one tree for their domestic needs the person belongs to another khel cut down two or more trees because of the competition among the khels. This competition and caste composition leads to more and more deforestation in the area.

2.2.2. LANGUAGE:

Kohistani is predominantly spoken in the village and they also can speak and understand Pushtoo. The people who work as daily wages labor in big cities like Karachi, Rawalpindi, and Lahore etc. can understand and speak Urdu and Punjabi because of their exposure to these cities and frequent interaction with the people of these cities. Local people prefer to listen songs in kohistani or in pushtoo on various occasions (Marriages functions etc). All of the people of the area can spoke and understand pushtoo as a secondary language because they have all trade interaction with pathans. Pushtoo also help these people when they smuggle the trees from the forest and export it into the other parts of the District because pushtoo is understand by each and every person of the District.

Table: 2.3 Languages speak and understand by the sample population

Languages	Kohistani		Pushtoo		Urdu		Punjabi	
	Speak	Understand	Speak	Understand	Speak	understand	Speak	understand
Percentage of sample population	100%	100%	80%	100%	30%	50%	10%	20%

2.2.3. RELIGION:

The whole sample population of this village is Muslim by faith and people follow the traditions of Sunni sect. The people of the area are staunch followers of Islam that is why religion in this village promotes solidarity among the people. Almost 80% of the total sample population having a beared and visits mosque for prayers five times a day. There are two religious madrasas (schools) in this village. For dinni Taleem (religious education) they sent their children to village mosque which also serves as a madrasa. Here is Mulvi sahib or Qari who teaches the Holy Qur'an to the children. Parents in this village prefer the religious education over modern education for their children .That is why the literacy rate in this area is very low.

One of the key informants told that in recent years the incidents to deforestation increase is because of the reason that these people are very religious minded and they are very conservative toward the NGO's. They do not allow any type of persons who convince them about the conservation of the forest. But these people are involved in the process of

deforestation and they believe that if we cut one tree Allah generate two or more trees, as we are involve in the process of deforestation since long time but these forest are still exist and will be exist.

Plate 2.4: A Mosque Kalam.



2.2.4. DRESS PATTERN:

Dress is an important indicator that manifests every pattern. Dresses like the language and dialects also differ from area to area depending upon the environmental condition. In this village, the inhabitant wear the traditional Pakhtoon dress of shalwar Kamees and head wear. Generally the people of this village during summer wear hand made Kohistani Toopi (cap) while in winter people wear Pakol (a woolen cap) also made in kalam. People also wear Chadder in the villages but in thickness they differ in winter and summer. Women folk wear Shalwar Kamees and Chaddar /veil and for Purdah, they use shuttle-cock Burqaus (veil). As for deforestation is concerned these people use wood as a fuel for making water hot and then they wash their clothes with that hot water. When

these peoples want to iron out their clothes they use coal as a fuel in their iron set. By this way they makes their iron set hot and then use it for ironing out their clothes.

2.2.5. OCCUPATION:

Male population (Adult) both within and outside the village is involved in the following occupations. Major occupations pursued by village men:

1. Forester or Forest guard
2. Agriculture
3. Govt contractor
4. Fishery
5. Wage labor
6. Shop-keeping
7. Wood cutting
8. Business/Shop/Transport
9. Driving/Conducting
10. Teaching
11. Others

There are many people in the village who practice more than one occupation. Cultivation is not the only occupation of the village because it is done on seasonal basis i.e. only in summer the people and land are eligible for cultivation. These people do many other jobs beside agriculture like some are shopkeepers, other are Taxi driver and yet another, working as daily wage labors in big cities like Karachi, Rawalpindi, Lahore, Peshawar etc, also working as part time employees in nearby village like Kalam in hotels because Kalam is a tourist place and the hotels are mostly made up by the resident of Kalam and near by villagers.

But most of the people are involved in the deforestation because these people are totally depends on forest wood. They use the forest wood for fuel wood, cooking meal, construction of houses, space heating, for furniture. Also these people use the forest wood for boundary walls of their houses, their fields and grave yard. So deforestation is one of the main occupation of the resident of the study area.

Table 2.4: State of occupation

S. No.	Gender	State of occupation	No. of participants	Percentage
1.	Male	Fishery/Fishing activities	04	04%
2.	Male	Students (Religious & Modern)	05	05%
3.	Male	Farming	19	19%
4.	Male	Deforestation activities	15	15%
5.	Male	Tailoring/Shop-keeping/own business	07	07%
6.	Female	Household wives/Unmarried Females /Farming in fields/Dependent female /Dini Taleem etc.	50	50%
Total			100	100%

The above table shows that 15% of the total populations are involved in deforestation activities and 19% are/were doing farming. So it means that a large no of the total population is involved in deforestation and Farming activities.

2.2.6. FOOD HABITS:

Simplicity is the haul mark of the food of the people of this village. The food is served on "Daster Kawan" (Dinning Mate) and eating habits are very simple. Mostly two meals are taken a day in an average household. Men may also take some food tea and parathey at noon in the agricultural fields, which in the local terminology is called as "Sakhti"(Noon) the traditional food of the village is "Sag (Spinach), Desi ghee, and butter" with maize and wheat loaves and Lassi; whenever some one of family visits nearly town, he brings beef which is eaten occasionally. Guests are usually served with rice and chicken. Special meat is taken as delicacy. The people also take "Qahwa" (green tea) after meal.

In summer season the persons work in the forest can not come to their home for tea break and for lunch but their children got the tea and lunch to the forest for them. These people do not come itself to their houses take the lunch in their houses because they mostly work very far away from their homes and it takes more time to come to house and than go back to the forest. While in winter season all the people sit around the fire and heating

themselves. The male members are mostly sitting down in the Hujras and play their local games around the bone fire. This difference in activities is due to the high snow fall in the study area. There occurs about 10 to 12 feet of snow in winter season so in this season these people become unable to do some work therefore they set in their Hujras while in the summer the season is very plenty and of the people are involved in different type of activities.

2.2.7. AGRICULTURE:

Most of the people are engaged in farming activities in summer season, because there is only one season for farming in the study area. The farming season starts from may to October in this season people cultivates only one crop. Because in the winter season there falls snow and the field are full with snow and not able for cultivation. Farming is one of the most important source of their income. The main crops of the area are potato's (Alo), turnip (Tepar), maize (Jwar) and cabbage or cauli flower (Ghopi) all these crops are cultivated at a wider range and then it is exported to the other areas of the district and out side of the district. They export these crops to other parts of the district and out side of the district because in these areas these crops are unseasonal and the people buy it with a high price. The whole study area is male dominated, that's why male members of the community are caring out agricultural activities i.e. the initial land preparation, ploughing, sowing and caring. Females in the area also work side by side with their male members. Generally at the time of harvesting females contribute with male in cutting the crop whether it is potato, turnip or maize. So agriculture is the only main source of their income.

As for deforestation is concerned these people cut down trees from the forest and made fields on the deforested area for their agriculture production, because according to the perception of these people agriculture productions are more beneficial for them as compare to the forest. So agriculture is one of the most important source of deforestation in the study area.

2.2.8. LIVESTOCK:

In this village livestock's are considered the main and major economic assets after agricultural (crops). In this village people own different types of livestock for household

consumption. Cow, buffalo, goats, sheep, bullocks etc are common livestock. As the bulls plough the fields, the buffaloes, cow, and goats give milk, curd, buttermilk, ghee, and meat. Milk, ghee, butter etc are used as a food especially to serve the guests. The commercial sales of these products are limited but some household sell these products specially Desi ghee. So this also helps in the household economy and to cover the financial burden of the household. This is also a good resource and become a medium of earning cash by the women of such household.

During my research it is observed that these people bring the bushes from the forest as food for these livestock. They also cut the leaves from the trees for their livestock some time these people cut down the small and newly grown trees for their livestock. During the summer season their livestock leave in the forest and eat the newly generated plants and trees also cut down some trees for their food. Due to sheep's, goats, cow, buffalo, bullocks etc the forest is affected badly at the time when they are grazing in the forest.

2.3 SOURCES OF INCOME:

2.3.1. Tourism:

Tourism is one of the most important source of income for the local people of Utror. Utror is historically an important area. Its rich archeological treasure is testimony to a glorious past. Its serene natural beauty, abundance of water, forest, wild life, good agriculture and grazing land and its strategic position provided a good milieu to nurture civilizations. Therefore the tourists from all over Pakistan come to enjoy this naturally beautiful area. These tourists come to this area in the transport of the local people and stay in their hotels and buy the ornaments and handicraft and other material of this area. But as there occur more and more deforestation in this area which affect the natural beauty of the area and hence will effect their economy indirectly.

2.3.2. Medicinal plants:

Medicinal plants continue to be an important source for the treatment of various ailments of human kind as well as livestock. People of various areas came up with a number of plants which they were using for curing malaria, pneumonia, cough and cold. Also these people export these medicinal plants to other areas of Swat district. Upper Swat Areas are rich in biological resources and house a large number of plants of medicinal value.

However all these plants are collected without any consideration for their conservation and sustainable use. At present all these plants face a number of threats including that of loss of habitat either due to climate change or due to increased human encroachments.

But all these plants are exploited to the extent that it is now available only in far parts of the valley. People said that once people came to know its commercial value, it was smuggled in bulk at very low rates. This overexploitation of medicinal plants is very common in the area. All these medicinal plants are now diminishing with the deforestation activities in the area. Most of the medicinal plants are grows up at the bottom of the trees. So as the trees are cutting down these medicinal plants are also diminishing with them. Therefore their economy is badly affected due to the deforestation.

2.3.3. Smuggling of Timber:

Some people are engaged in smuggling of timber and this smuggling is their source of income. This is one of the basic reasons for deforestation. Some interesting techniques of the smuggling of the timber are as follows;

1. The trees are cut and sent to the down areas through rivers, like river Swat, and then they are moved out in Mingora region with the connivance of the forest/officials; as such the land route is avoided to have minimum possible checking.
2. The timber mafia for smuggling uses any festival or occasion. Positioning all the excavated timber on the floor of the vehicles and people sitting on top showing that they are proceeding for the said ceremony.
3. The movement of public in big gatherings or political Italicizes (jalsas) where the movement of public is done in vehicles.
4. The timber smuggled through the mountains on mule and donkeys to avoid the main roads.
5. The timber smuggled in days of Ramadan at the time when all the people are engaged in eating their Ramadan meal.

2.3.4. Horticulture:

Horticulture is also one of the main source of their income of Utror. The main fruits grown in Utror are apples, walnuts, plums (locates), Amlok (japani phal). The area of Utror under orchard is small because the people are cutting the trees so that to use the

land for agriculture. The fruits are usually used for commercial purpose but they have no much commercial value in the market as compared to the agriculture products, i.e. vegetable. The main vegetable of the Utror are turnip, potato's, cabbage which has great commercial value in the market. Therefore these people continuously involve in the cutting of the orchard trees which also leads to the shortage in the percentage of trees in the study area. According to the socio economic survey form there occurred 50 to 60 percent decrease in the number of orchard trees in the last decade and this 50 to 60 % land has been converted into agriculture land. The high commercial value of the agriculture products and vegetable and the comparatively less value of the orchard products lead to deforestation in the study area.

2.3.5. Bee and Honey:

The people of Utror makes holes in the trees and walls of their houses or put the mud made pottery in the trees for the bees to get *Gabin* (honey) from that and this habit is very common in the study area. The honey of Swat is very famous all over the country. These people get the honey by different methods and then sell it in other parts of the district and out side of the area. The bees get their food from these trees and other different plants. However the cutting of the trees leads to shortage in the number of trees and damages to other plants also. So the cutting of the trees leads to shortage in the number of the bees which leads to the disturbing of the economy of the people.

2.3.6. Fishery:

There are some private fisheries in Utror. In these fisheries the trout fishes are being reared. Swat River serves as a permanent fishery throughout the year. The tourists are mostly served with the trout fish. The trout fish are very well known in Swat district. As the water of the river Swat comes from the hills of Utror, hence the forest play an important role in regulating the water flow and makes the earth safe from soil erosion and floods. The snow falls on the hills, which remains on the mountain for a long time and melts slowly and hence become a source of the river Swat in which the people catch the fishes. So the forests play an important role in the fishery.

2.3.7. Qalang:

In this system land both cultivable and non-cultivable is given on Qalang, which is used for grass cutting and gazing. This system is applicable usually for a set area of cultivable

and non cultivable lands in combination with set amount of products and services. These include grain, chicken, ghee, and free labor in the agriculture fields of the owner, services in the hujra of the owners as a servant but mostly they get the Qalang from these people in the form of cash amount. So the Qalang is also a source of income of the local people. The people who graze their animals are called Gujars. But the negative impact of this grazing of the animals is that these animals' eats not only the grass but it also eat and damages plants both cultivated and self grown, which also leads to deforestation in the area.

2.3.8. Royalty:

Royalty is the share of the concerned *dowter* (Owned land of the local people) land owners on the amount of the sale proceeds of the timber extracted by the forest Department for commercial purposes. Under the working plans sixty percent of the amount accrued is paid as royalty to the concerned *dowter* (Owned land) land owner. Since in Utror there are communal forests therefore the royalty is divided equally among the male persons of the village. When the forest department cut a tree from the forest and sells it in to the market then there is a share in the total amount of sale i.e. 40:60. Forty percent share takes the forest department and sixty percent share takes the local people. So this royalty is another source of their income. But the number of trees decreases due to the deforestation which ultimately affects the income of the people from royalty.

2.4. CIVIL AMENITIES/FACILITIES:

These include the facilities by government and those, which are naturally available to the people.

2.4.1. Education:

There are three primary schools for boys in Utror. For girls there is one primary school in this village. There is middle and a high school for boys but no middle or high school is available for girls. There is one primary private school in which boys and girls get together education. The condition of these schools is awful because there is no regular staff and also shortage of other facilities like these schools are mostly closed from the month of December to the month of April because of the high snow fall. Very few children get high school education. My informants were of the view that only male get

education up to the high school level and the girls are not allowed to go in the high school. For female they were of the view that it is not necessary that they should get modern education. For female parents prefer religious education in their houses or Madarasas (A place for religious education). There are three Madarasas in the Utror. According to local people it is necessary that female should stay inside their household. Due to this reason the female literacy ratio is very low that is 3% in this village.

Table no. 2.5: Education systems in the village

Gender	Formal			Religious	
	Schools			Madrasas	
	High	Middle	Primary	Tajweed	Uloom-e-islam
Male	01	01	03	01	01
Female	0	0	01	01	0

Table no. 2.6: Educational level of the sample population

s. no	Level of education	No of Respondents	Percentage
1	Illiteracy	50	50 %
2	Primary	29	29 %
3	Middle	10	10 %
4	Matric	5	5 %
5	Intermediate	3	3 %
6	Graduation	2	2 %
7	Above graduation	1	1 %
8	Total	100	100 %

Source: Own Research.

As for deforestation is concerned the people of this area are involved in the wood cutting because they prefer to send their children to the forest for wood cutting and for collecting dry branches of Diar trees for fuel wood and other domestic needs. But still some children go to school to get education up to middle or matriculation level. Study finds that during agricultural season the parents want the help of their children in the fields and did not mind if they did not go to school on these days.

2.4.2. Health:

The villagers treat their health issues by following either or a combination of following ways.

- I. Allopathy
- II. Homeopathy
- III. Hikmat and spiritual or religious healers.

I. Allopathy:

In this village there are governmental and private treatment facilities available and they can avail reasonable allopathic treatment. The village has small medical stores in its bazaar; from where villagers get allopathic medicines for minor ailments. In ordinary case villagers used to visit to the village dispensary for first aid treatment, but in special cases or emergency they move to Emergency hospital in Saidu Sharif which is 116 kilometers from this village.

II. Homeopathy:

Since the area is rich in medicinal plants therefore along with allopathy people of the area also use homeopathic treatment (medicine) for certain disease like aching tooth, sore throat, wounds, joint ache, cholera, diarrhea, skin irritation, etc. Because various plants and herbs are considered to be the affective treatment of the above mentioned diseases.

III. Hikmat and Spiritual or Religious Healers:

People of Utror also use religious treatment and methodology for the treatment of certain diseases. The influence of religion is very much there in this village. As a consequence people consult "Maulvis" (religious leader) and the people with religious fame to find out religious treatment of their diseases. They treat the people (patients) with tavæez (emulates) and recitation of the verses of Holy Qur'an. In the study area there are

hampered by a lack of trained staff, inadequate funding, medicines, equipment and management. Most of the doctors of the area are only metric pass and are dispenser but these people consider them doctors. There is no emergency near to this village, so the complete absence of emergency medical care results in innumerable death and amputation in case serious injured in the process of deforestation. The present medical infrastructure in this village is both inadequate and inefficient i.e. nil.

Table no 2.7: Treatment methods in the village Utror

S.No	Methods	No of Respondents	Percentage
1	Allopathy	30	30 %
2	Homeopathy	40	40 %
3	Hikmat	30	30 %
4	Total	100	100 %

Source: Own Research

As these people are fully dependent on the forest resources for their livelihood. They extract medicinal plants from the forest. When some one becomes very serious injured in the process of deforestation then he is treated in the emergency hospital at Saidu sharif.

2.4.3. Transport:

Here in this village Utror there is a road along with the River Swat side. During heavy snow falls due to absence alternatives a communication gap comes between this to other parts of the district. The people of this village are dependent on this road to avail the basic facilities of life. The road from Utror to Kalam tehsil (connecting point) is not black metallic (carpeted) approximately sixteen kilometers. From Utror to Kalam bazaar every type of transport is available till to evening. If the villager fall by any type injured in the process of deforestation they go to the hospital in this transport. 50 % of the people having their own transport which they used for different purpose according to the seasons. Every normal conditional person is able to buy some type of transport for their personal use because there is no tax on the transport and all the transport available in the village is non custom paid (NCP).

These people use it for pick and drop service of the tourist during the summer season. Also use this transport for taking their agriculture material from their fields. While at the starts of the winter season this transport is used for collecting wood for the winter season because in winter season it is impossible to take woods from the forest because of high snow falls.

The area is partly hilly and partly plain, even the plain area is not fit enough for traffic of transport vehicles. These people having mostly four wheel and trucks or jeep which they use for taking wood from the forests. Because there exist road in the forest till the top of the hills and there is no difficulty for such type of transport to go there and takes a large amount of wood. So transport facility to the hills is one of the reason of deforestation in the study area.

2.4.4. Electricity:

According to local people this village was electrified some 15 years back. The distinguishing factor of electricity is that, there is no supply of governmental electricity in the study area. They themselves produce electricity from the water of river Utror Swat. They cut down the large trees and make holes in them and made a canal type shape from them. Then the water is flown in the said trunks just like in the canal to some extent of height from where the water is fallen into the electric power station (generator), fit at the bottom. It is a very interesting technique and the people have not to pay electricity bill, but just to pay some amount 100 to 150/year per house to the person who takes care of this electric power station. He connects and disconnects the electricity. During the night time the electricity is connected from early evening and during the day time it is disconnected and remains so till the evening. There are totally eleven electric power stations in the study area. Each power station is made jointly by some household and if there occurs some damage to it, all the concerned householders are responsible for repairing it. These power stations are self made and are not as powerful as the government electric station.

Plate no 2.5: An Electric power Station in village Utror



This is the picture of self made electric power station (generator) by the local people. Due to the above mention reasons i.e. low voltage electric stations, the supply of electricity is for 10-12 hours per day. The voltage is as low as the light of Laltain (Candle). There is not even a single T.V or other electric appliances i.e. washing machines, refrigerator etc in the study area. They do not use fans even in June and July because the area is cold and the Iron is heated with coal (koila) to press their clothes with coal iron. Deforestation is directly associated with the electricity as their all power station are made of wood. They heat water for washing their clothes by burning of wood and also use wood for heating their irons.

Chapter 3

SOCIO-ECONOMIC SIGNIFICANCE OF FORESTS

3.1. FORESTS IN PAKISTAN:

Only four percent of the land area in Pakistan is covered with forests. In 1947 the position was even worse, with forest coverage at only 1.7 percent of the land area.

Table no. 3.1. The area covered by Forests in Pakistan.

Areas	Northern areas	N.W.F.P	Sindh	Punjab	Baluchistan	Total
Forested areas (in thousands hectares)	660	1214	923	687	333	3817
Percentage shares	17.3	31.8	24.4	17.8	8.7	100

This table shows the percentage of forests in Pakistan and its four provinces. It shows that NWFP contain more forests than any other province. But the rate of deforestation is so high in NWFP therefore the government has to adopt some strategies to stop the high rate of deforestation in the province. (*Environment of Pakistan, 2006*)

3.2. FORESTRY IN SWAT:

About 20 % of the land area of the District is under Forest (District Census report, 1998). The government declared them as "Protected Forests". In the half of the century from 1917 to 1969 Swat was a princely state ruled by the Wali (Ruler) of Swat the first Wali being the grand son of the Akhund (Saidu Baba). During this period law and order was established in the area and the first settlement of land tenure was carried out. All the forests in Swat were declared as state property. If any income was derived from the forest it was be share between the state and local people. At that time each forest area was assigned to a prominent person who was responsible for its protection and the Wali

remained well informed about the state of the forests. Because of such authoritarian rule no illicit damage could occur in the forests. At the same time the needs of the people were met expeditiously whenever they applied for their quota of timber for domestic use.

(District census report, 1998. p. 4-5)

In 1969 the former Swat state was merged with Pakistan. In 1975 all its forests previously belonging to the wali were declared as protected forests. A state of uncertainty prevailed between 1969 and 1975 and even much later during which the people felt released from authoritarian rule and started illicit felling and encroachment on forest land and from here the deforestation activities starts on. (Sultan-i-Room, 2005. p.30)

Most of the Forest is concentrated in the northern areas of Kalam like Utror, Gabral and Ushu. The major's trees of the forests are;

- 1) Diar or Deodar (blue pine)
- 2) Chir (pine)
- 3) Fir
- 4) Spruce

Diar is the most popular variety grows in vast amount in the upper belt of forests. Wood taken from them is durable and is not rotten easily even in the water, therefore they are used in underwater constructions, buildings and for furniture's. But these people also used Diar wood as a fuel wood and for space heating because it is very good in burning and not producing pollution. Chir (pine) is another useful wood which is used for timber, beams, rafts, for field protection and boundary walls. Fir is also use for boundary walls and as a fuel wood.

Due to these forests wood cutting is a common profession for the local people. They also get a meager amount as royalty from the government. Some people collect mushrooms in these forests and sell them with high prices. Mover over resin is obtained from the trees of pine also they collect medicinal plants from these forests. Due to the high dependency of people on forest, wood cutting has become a permanent source of livelihood in the area.

3.3. CATEGORIES OF FORESTS IN SWAT:

The legal categories of forests are based on the ownership and rights etc, in the NWFP province are explained below:

3.3.1. *Reserved forests:*

These are those forests, which are the exclusive property of the state and bear only minor concessions like right of way, collection of fuel wood and permission of grazing by animals of the local communities.

3.3.2. *Protected forests:*

These forests were inherited from the princely states of Swat.

They have been declared to be state property subject to the payment of royalty on timber sale to the local right holders to the extent of 60 to 80%. Such forests are situated in the districts of Chitral, Dir, Swat and Kohistan (right side of the River Indus).

3.3.3. *Guzara Forests:*

They are also called wasteland in legal documents and are the property of the local owners, in most cases divided amongst families in the revenue record.

The management of these forests however is originally vested in the deputy commissioner of the district and delegated to the forest department. Afforestation in Guzara forests being planted by the department under various projects. The land owner of such forest are entitled to use free of charge for their domestic need and for agriculture requirement but if they want to sell any tree or brushwood they have to obtain the proper permission from the local forest officer. Guzara forests are further divided in to two categories.

a) Malkiati:

Malkiati or individually owned forest. An individual or family owns this type of forest and they have the right to use it as they use their own property.

b) Shamilat:

Shamilat land is a communal land. Groups own these forest lands it can be on three bases:

i) Caste shamilat:

Caste shamilat includes several villages, at a time who have joint ownership over the forest.

ii) lineage shamilat:

A family or a kin group, who jointly enjoy the rights of its usage, owns this type of shamilat.

iii) Village shamilat:

In this shamilat the people of one village are the owner of the forests regardless of their castes.

The primary forests in the upper Swat areas and the NWFP have many important uses and are a source of livelihood for communities. In addition many ecological and environmental benefits and imperatives are associated with them. Survey shows a rapid decline in both coverage and the quality of forest standards. Such deforestation has led to a spate of on site and downstream ravages such as biodiversity loss, erosion, flooding and dam sedimentation. As the forests of Utror are declared protected forest according to the forest roles and these people are receiving 60 % of the total royalty. But still these people use these forests as village shamilat while these forests are declared as protected forests.

3.4. IMPORTANCE OF FOREST:

Forests are important in very different ways. From an ecological point of view, they help to maintain balance in the environment by checking pollution and protecting the soil from erosion by wind or water, particularly on sloping ground.

By preventing soil erosion, the trees on the slopes of hills also regulate the supply of water to the reservoirs there by preventing floods. The composition of leaves helps in humus formation, which maintains the fertility of soil, which in turn shows fuel supply to these local people.

From commercial and industrial point of view, these forests provide raw material to various industries e.g. timber, pharmaceutical and paper. They also have recreational value, promoting tourism and provide employment in the forest department. There are many employment opportunities that depend on the forest.

From social point of view the forests of Utror protect air pollution by absorbing carbon dioxide and producing oxygen. Forest wood is used as a fuel wood, for construction of houses, for furniture etc. These Forest also protect the flood and land sliding which leads to thousand people death, it also protect water from pollution and watershed and produce a lot of medicinal plant which are used in different diseases.

To sum up the importance of forests is:

1. They are a source of fuel, wood, timber, gum, resin, turpentine oil and many other useful items.
2. Wood for matches, paper, sports goods and rayon.
3. Medicinal herbs.
4. Most regions of Pakistan receive low rainfall. The northern mountains receive plenty of precipitation. The rivers and streams of Swat receive the water and flow on the slopes of the mountains. The forests on these slopes restrict the speed of flow and help in maintaining a regular and constant flow of water to the plains.
5. Prevent soil erosion.
6. Forests are a source of recreational activities.
7. Forests provide job opportunities to great number of people.

3.4.1 Socio-economic importance:

Some 6,200 people live in or at the edge of the Utror forests range. They are some of the least privileged groups in our global society. They depend on the forests for many important products and environmental services. They not only meet their economic needs for food and shelter but also form an integral part of their culture and spiritual traditions.

Forests provide these people a wide range of industrial wood products that they supply to cities and these are use in cities in, daily life lumber, panels, posts, poles, pulp, and paper etc. Forest production is divided almost equally between industrial uses and fuel wood. Whereas the village Utror produce most of the industrial wood products which these people supply to other parts of the district and out side of the district to get some cash money. Wood is by far the most important source of energy in Utror and the only source of energy for all of the people of Utror. In addition to wood products, these forests

provide them a wide range of non-timber forest products, the so called "minor" forest products which in many cases are "major" forest products for the local people. These include fibers, resins, fruits, and traditional medicines. Forests are often important sources of foodstuffs, particularly in times of drought and famine when conventional agricultural crops have failed. Most of these "minor" or non timber forest products are produced, traded, and consumed outside to get some cash economy and therefore are not quoted in the national economic statistics. Forests are also very important economically for plant-improvement breeding Forests are also important sources for the traditional treatment as the people of Utror use the herbs and other plants for different diseases. Also different pharmaceuticals used these plants to fight cancer, AIDS, and other serious human diseases. At present, our knowledge about forest plants is limited, but it is improving with ongoing research. Obviously, the great variety of forest products is important by any economic standard. So we have to aware these people from the importance of these forests and to prevent these form deforestation.

3.4.2. Environmental importance:

Forests have a special role in the conservation of biodiversity in the study area. They are the home to 70 percent of the total plants and animals. These forests contain 70 per cent of vascular plants, 30 per cent of all bird species. Forests influence the local as well as the global climates. They moderate the diurnal range of air temperatures and maintain atmospheric humidity levels. Forests absorb atmospheric carbon and replenish the oxygen in the air we breathe. The conservation of forest resources in the watersheds that supply water for irrigation, sanitation, and human consumption is an important component of water supply strategies. Forests regulate stream flows by intercepting rainfall, absorbing the water into the underlying soil, and gradually releasing it into the streams and river swat. This minimizes both downstream flooding and drought conditions. Tree cover conserves moisture in the soil by providing shade that reduces the evaporative loss from radiant energy exchange with the atmosphere. Tree roots enhance soil porosity, reduce compaction, and facilitate infiltration. Trees act as windbreaks, reducing the force of desiccating, eroding winds at ground level.

3.5. MANAGEMENT SYSTEM OF SHAMILAT:

These forests are being managed by two ways;

3.5.1. Through local Jirga system:

There is a local Jirga system in Utror village, which is composed of fifty two members who are from the distinct castes. Since the total population of the village is 6,200 therefore each Jirga member has hundred members under his control. On the role of this Jirga system it was mentioned that if some one cut down one tree from the forest he will have to pay Rs.6000 fine for that illegal cutting. On the other hand this Jirga system has made two check posts on both boundaries of the village so as to control the smuggling from Utror to other part of the district and out side of the district. These check posts are made on the financial support of the villagers and the villagers paid a lot amount to the persons who guarded the check posts so that the timber may not be smuggled.

3.5.2. Through Forest department:

According to governmental role if some one cut down a tree from the forest he will be fined at Rs.6000 per tree. There is no fine on the cutting of the dry trees but when some one cut down a green tree he is fined Rs.6000 by the Forest Department. There are Forest Guards in these forests who informs the Forest Department that such a person has illegally cut tree from the forest and the Forest Department fines the mention person.

All the harvesting systems of forests have their merits and demerits. The controlling agency by virtue of its basic mandate is obliged to minimize the negative impacts of deforestation and want to control deforestation in the study area. But both of these systems are failed and are not successful to stop deforestation because no fine has been received from any one in the area therefore the people are encouraged and are busy in the process of deforestation. Because they know that no one is able to get fine from them. The Divisional Forest Officer visit once a year to this area and establish there a court which is called "camp court". In this camp court all the fined people are collected and the Divisional Forest Officer make concession with the villagers and receive only 200 or 300 as fine from the persons who involved continuously in the process of deforestation. The Forest Department and the Jirga system are the custodians of the forest resource in the village. By and large both of these failed in doing its primary duty of forest management, which resulted in decline and degradation of the forest resource.

3.6. RIGHTS AND CONCESSION IN THE FOREST:

Since the dissolution of the state in 1969 all the forests formally belonging to Wali of Swat have been declared as protected forests. Regular settlement of the area has been carried out recently but so far these forests have not been delineated through masonry boundary pillars. Though the local people are not fully reconciled to the ownership of the forests by the government, they continue to exercise the following concession in the forests;

- share in the sale proceeds of timber to the entitled of all the community members that is 60 % is given to the community people and 40 % gone to the government.
- Grazing for domestic livestock free of charge.
- Firewood collection, free of charge.
- Purchase of timber at concessional rates allowed to the non-entitled residing in Swat district, after obtaining no objection certificate from the entitled.
- Timber quotas for the construction and repair of residential buildings of the entire community. The whole planning area is divided into 85 compartments. The local quota allotted to the study area by the government is 70 trees per year for the reconstruction and repairment of their houses but in the case of emergency it may be increased according to the situation. On the individual level the local quota is 3 trees per house hold per year. The local quota is given to these people in the shape of trees but these people fell more trees than what ever is permitted to them. Thus the forest area is continuously changing to rangeland and agriculture fields. According to survey round about 20 to 25 % of the forest has been converted to the agriculture land and other land during the last decade.

3.7. ADVANTAGES OF SHAMILAT:

There are a lot of advantages of the shamilat forest land to these local people some of the advantages are:

- If the present communal forests divide permanently among the individual or castes, then the poor people of the area will sell their own forest on cheaper rates to the wealthy people of the area and by this way the poor will lose their forests. As my key informant informed me that this case will be quite similar to their land distribution in which the poor one's become totally deprived of their land as the wealthier bought the land from these people at cheaper rates and now the poor have no land for cultivation and other uses.
- In this system the forest are not distributed the benefit of which is that when a male child is born then he automatically becomes an equal partner in the forest royalty.
- One of the benefit of the shamilat is that when there occurs fire in the jungle and as it is not easy to put off the fire individually, thus all the people of the area go together because of individual share's in communal forests, if these forests are to be divides and a fire occur to forest the individual will not be able to put off the fire alone and all of his property forest will be burns.
- In this shamilat system each and every person takes care of the forests and no one out side of the community member can steal or smuggle wood from the forest. Therefore these forests are only usable by the villagers and no one, other than the community member is allowed to use the wood of these forests.
- The distribution of the forest will lead the people to cut trees of other to save their own and this will lead to an intra conflict among the castes of the community.

3.8. ECONOMIC FUNCTIONS OF FOREST:

Forest is a prime source of the economy in most of the regions, in the study area the people mostly relay on forest for meeting their economic needs. Some of the main economic functions of forest are;

3.8.1. Forest as a dependable source:

In Utror people are dependent on the forest in many ways. The chief requirements of the people for domestic and commercial purposes from the forest are fuel wood, grass cutting, and grazing for the cattle, chir timber for agriculture implements, poles for construction of houses and cattle sheds, for making bridge to cross the river, for making the electric power stations, and use the wood as boundary walls.

Forest produces and its by-products are accumulated through both legal and illicit means. Legal means are the selling of marked trees, cutting of trees for domestic uses with permission, annual selling of resin, collection of fir wood and grazing of animals in pastures. Illicit means include unauthorized cutting of trees, extracting of fire wood and destruction of early plants by grazing.

3.8.2. Wood for domestic use:

In Utror an average owner is allowed to cut 3-4 trees a year by permission. An application is filed before the Forest Department, explaining the requirement of the tree use. Trees is marked by the Forest Department and cut in the presence of local forest Guards. Other way is the marking of tree after every few years when forests are sold and owner get their share, forest department extract 40% of the total income as management cost and expenditure. This is a very slow process, often trees are not marked properly which results in their decline.

3.8.3. Grass cutting:

In Utror people cannot graze from their fields. But these people cut grass for their live stock from their forest. So they can't buy the grass or not cultivate it by themselves but only cut the grass which is grown in the forests. Then from these live stock they receive other material like ghee, milk etc. They also sell their sheep and goats in other parts of the district.

3.8.4. Collection of pine leaves and seeds:

Some people exploit forest resources by collecting dry leaves from the forests to be sold in the market at the rate of 80 Rupee per maund. So an ordinary man can collect two maund leaves and in this way he can earn Rs. 160 per day. Some people collect the seeds of the Chir pine and deodar and sell it in the market.

3.8.5. Fire wood:

The people of Utror are permitted to use dry, wet and fallen trees for domestic uses under the forest rules, but heavy demand of wood requires more exploitation. The climate of the area is cool and each household needs a bulk of fire wood in winter for space heating. All the people of the study area use firewood as the major source of domestic energy. The wood is collected by the men, women, children, they collect different types of wood for firewood mostly they collect the Diar wood for domestic use. Some of the people use kerosene oil in some specific conditions. An average household according to result of the socio economic survey form and interviews conducted, consumes 5-6 trees in a year for meeting their needs other than construction.

3.8.6. Felling and Lopping:

People have the right to use their fallen and dry trees. They can use this wood for their own domestic needs in Utror. Lopping of trees is done by the forest department while the branches and other material go to the villagers.

3.9. USES OF FOREST WOOD:

The obtained wood from the forest have many uses in the study area. The main uses of the forest wood are given below.

- 1) Fuel wood
- 2) Space heating
- 3) Boundary walls
- 4) Making electric power stations
- 5) Making bridges
- 6) Use as furniture
- 7) Use in houses constructions.

Table: 3.2. Deforestation and involvement of different classes

	Rich class	Middle class	Poor class	Educated people	Uneducated people	Total
Fuel wood	30 %	20 %	10 %	10 %	30 %	100 %
Space heating	30 %	20 %	10 %	20 %	20 %	100 %
Boundary walls	40 %	20 %	10 %	5 %	25 %	100 %
Electric power stations	20 %	20 %	20 %	20 %	20 %	100 %
Bridges	25 %	25 %	20 %	5 %	25 %	100 %
As furniture	30 %	25 %	10 %	10 %	25 %	100 %
House construction	25 %	25 %	10 %	10 %	30 %	100 %

Source: Own Research

3.10. PLANTATION FOR AFFORESTATION:

The people of the study area do not do plantation for Afforestation by itself either individually or collectively. Because according to these people the land covered by the forests is not more beneficial as compare to the use of that land for other purposes such as agriculture. Therefore the people do not do plantation of trees in cut over areas or in open area. But the Forest Department of Swat region do plantation of trees in cut over areas by taking 10 % of the total royalty. The royalty of the trees is divided among the local people and the forest department at the share rate of 60% and 40%. But these local people do not re-plant the trees by themselves and the re-plantation process by the forest department is very slow and gradual. So this slow and gradual process of re-plantation leads to decrease in the number of trees in the study area.

Chapter # 4

Causes, Consequences and Impacts of deforestation

A forest is best defined as an ecosystem or assemblage of ecosystems dominated by trees and other woody vegetation. Vegetation is the plant cover of the Earth and includes trees, shrubs, grasses, lianas (vines which climb up trees) and mosses. Of these, trees are the most important to humans because they supply timber and firewood. They also help reduce runoff, soil erosion and air pollution. In fact, it is claimed that forests should cover 20 to 25 per cent of a country in order to maintain a balanced economy. Trees must be planted extensively and protected wisely for future generations.

What causes deforestation? No single factor can account for the high rates of deforestation. Rather, the problem is a result of a multiplicity of factors. Forest depletion is taking place in the natural forests of Utror at a very high rate. One of my key informant told me that these forests have reduced mainly due to conservation of land for construction and agriculture purpose as these people rely on the Agriculture, thus to obtained and fulfill their agriculture needs these people cut down trees from the forest and made agriculture fields round about 375 Acres of the total land has been converted to Agricultural land. So agriculture is directly proportional to the degeneration of forests. Increasing population has enlarged in the number of dependent on the forest resources in the study area. The forest depletion is also due to conversion of forest land for the construction purpose, combined with grazing and cutting of woody vegetation for fuel and also due to unauthorized as well as authorized felling of trees and on the other hand inadequate regeneration and less cultivation of mountain slopes. Fuel wood is also one of the most important factor of deforestation, anything that burns is fuel wood for the sanctuary dependant communities. Most of the trees, woody shrubs and dry leaves are used as fuel. Some natural calamities also lead to deforestation in the study area.

Table 4.1: The use of total land of Utror for different purposes

Total area (in Acres)	constructions	Area used for agriculture	Forest area	Barren or hills
1500	150 Acres	375 Acres	900 Acres	75 Acres

Source: Survey conducted during fieldwork

Table 4.2: The use of Forests wood for different purpose in Utror

Total Deforestation (in percentage)	Deforestation leading to constructions	Deforestation leading to agricultural land	Deforestation leading to domestic use
100	20 %	50 %	30 %

Source: Own Research

Forest depletion and forest plantation is a serious problem of Utror. What are the most important causes of deforestation these causes may be grouped in to five categories which are as follows;

- 1) Natural causes.
- 2) Structural causes.
- 3) Human causes.
- 4) Institutional causes.
- 5) Direct causes.
- 6) Indirect causes.

4.1. NATURAL CAUSES:

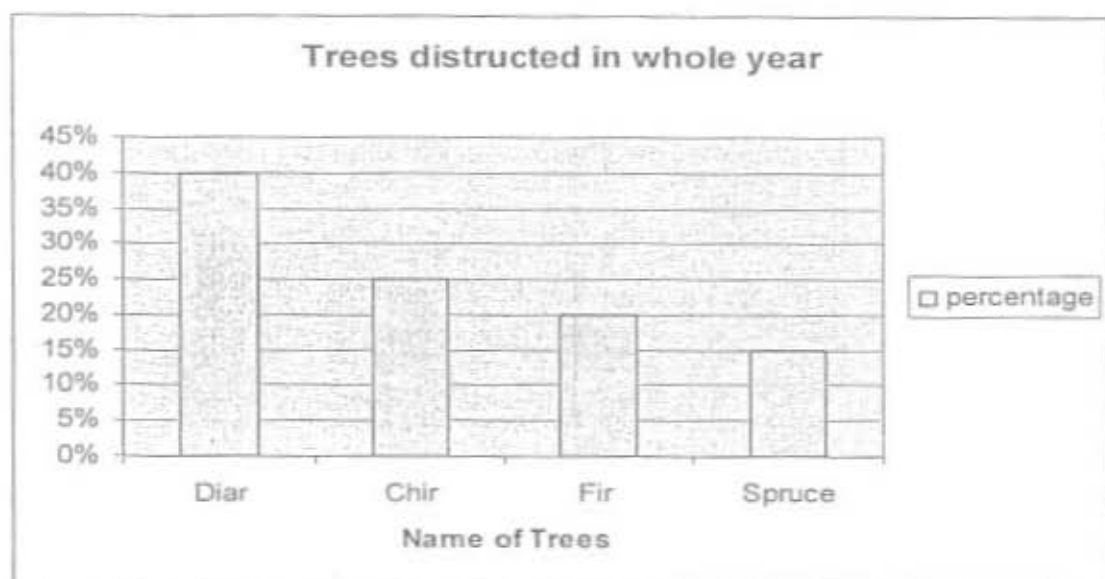
Some causes of deforestation are naturally occurred with out human interventions which threaten to the existence of forest in the study area. Minor natural causes of deforestation are hail and drought which damage seeding, and flying of different types of birds which eat tree seeds. Climbers cause some damage in the high mountains in the study area. Old age and some diseases at the younger age also destroyed trees. Some time there occurs a very high level wind and storm which also leads to deforestation. Snow creep at higher elevations cause deforestation as in Utror there occurs more snow compare to all parts of the district. The snow mostly occurs in the mounts of December, January and February and in these months the newly cultivated plant/trees comes under the snow fall due to which most of these plants become destroyed. Glashiers occurs in the study area which also damage some trees also some time destroyed the houses and fields of the people. Soil erosion initiated by shifting cultivation is the principal cause of loss of soil productivity and ultimately the soil itself, which is the ultimate basis of forest productivity.

Table: 4.3 Annual deforestation and its natural causes in Utror

Hail and drought	Birds	Diseases	Wind & storms	Snow	Glashiers	Total
10 %	15 %	10 %	20 %	30 %	15 %	100 %

Source: Own Research

Figure: 4.1 Percentage Deforestation of different Trees



The above table shows the destruction of different trees in the study area per annum.

4.2. STRUCTURAL CAUSES:

These causes are those, which come out of the social structure of the community as the socio economic and political conditions either individually or collectively play their part of role in the forest depletion. The main structural causes of deforestation in Utror are given below.

4.2.1. Poverty:

Poverty is one of the cause of forest depletion in the study area. As most of the people of the study area are poor and they are totally dependent on the forest products for grazing, cutting of wood for domestic use and its sale to earn their livelihood. Because there is no other alternative jobs opportunities for these poor people. These people cut down trees for

their own need as well as for the other rich people of the entire community who gave them some cash money as their wages.

Table: 4.4. The no of Poor Respondent involve in each activity

Grazing	Domestic use	Sale purpose	For getting cash money	Total
10%	40%	20%	30%	100%

Table: 4.5. Economic Status of the Respondent and their response to deforestation

Response	Number of respondents	Economic status	Involvement in deforestation
We cut because of our weak financial positions	35	Poor class	40 %
Because we have no alternative	35	Middle class	30 %
Because forest are less economical to Agriculture	30	Rich class	30 %
Total	100		100 %

Source: Own Research

4.2.2. Unavailability of alternatives:

In the study area Utror the number of trees cutting is increasing day by day according to the population growth. As according to the socio-economic census survey form there occurs 20 to 25 % decrease in the forest area since last decade. But one of the major cause of deforestation in Utror is unavailability of alternatives. In Utror there is no governmental electricity nor is the natural gas available. These people are self producer of electricity by means of generators which are not so strong in providing electricity to fulfill their all electrical needs. There are fifteen generators in Utror each of which is

shared by round about 40 household. These generators are affordable for the poor people because these generator runs through the water of River swat which they receive free of cost and they only pay some amount to person who take care of the generator. The other thing which leads to deforestation in the study area is unavailability of natural gas as in the study area there is no gas available to use it as energy requirement. So the electricity and natural gas are the basic alternatives of forest degradation.

4.2.3. Unawareness:

Mostly the people who are illiterate are likely to be found in deforesting activities. This shows that there is great relationship between education and deforestation. Deforestation is for earning purposes and when people don't get education they have limited sources of earning or options, so they intend towards deforestation. And when there is less education, they pay less attention to the importance of forests in the environments. Certain awareness programs have been played in the village by the government and other NGOs to educate the people in this regard so that they should understand the importance of forests, but remained less-successful due to the phenomenon of illiteracy. And as a result, when they are involved in deforestation activities and find their way of living hood there, they are not in a position to educate their children.

Table 4.6: Involvement of Educated and Economic groups in deforestation activities

People involves in deforestation in percentage of the total population	Educated groups involvement		Economic groups involvement	
	Illiterate people	Literate people	Poor people	Rich people
50	40	10	35	15

Source: Own Research

Even when they are informed they become hesitant to adopt untested practices, which involve risk, additional investment, reduction of income, unless education and communication are combined with empowerment. Most of the villagers do not send their children to school due to poverty and unawareness of the importance of education therefore they send their children to the forest for wood collection to use it as a fuel wood. So these people are unaware of the social and economic impacts of these forests therefore they are much involve in the process of deforestation.

4.2.4. Agriculture:

As agriculture is more beneficial than forest for the people in the study area and the area is favorable for agriculture. It has also been noted that agriculture is the main economic activity of the people. Over 80% of the population depends on agriculture. Crops grown are mainly maize, potatoes, turnip, and cabbage or cauli flower. The last three are the major cash crops in the village Utror. Maize is both cash and a food crop while the rest are grown as cash crops.

There has been 25 % expansion of agriculture in Utror over the last ten years as evidenced by the increase in area under cultivation of various crops as mention above. Although the acreage has been fluctuating from one season to another, the general trend shows an increase in the area under cultivation. As the socio economic survey shows that in the last decade 20 to 25 percent of forest area has been converted to agricultural land. The area under maize cultivation, potatoes, turnip, and cabbage or cauli flower has increased substantially each year. When potato and turnip was introduce in to the area, only 28 families grew the crop and only 2.5 ha was cultivated. Ten yeas later, however, the number had increased to 800 households of the study area and 71.42 ha land is under cultivation. Now round about 80% of the total population are engaged in the process of agriculture production and round about 25 % of forest land has converted to agriculture land.

The involvement of 80 % of the total population in agricultural activities reduces the forest land and the forest land is converting to the agriculture land. So agriculture expansion is one of the most important cause of deforestation in the study area. In

addition to the negative environmental impacts that are common to all forms of deforestation, the increase in the commercial value of agricultural production and less value of Forest wood often brings with it a series of problems related to the use of agrochemicals including deterioration of workers' health and the contamination of crops, soils, and ground water.

Plate: 4.1 The Forest land converting to Agricultural land



4.2.5. Population Growth:

So this leads into a very confusing question of the 20th century. Why are these trees being torn down? According to the local people at the time of Wali Swat (Ruler of Swat when Swat was a state) round about 90 % of the area was forested. Today 30 to 40 percent of the forest land of Utror has been vanished and the rate of deforestation is increasing day by day as round about 20 to 25 % deforestation occur in the last decade. There is no one easy answer as there are many causes at the root of deforestation. One is over population of the village Utror. Some had land until increases in population forced

them off it and they became landless peasants that are forced to look for land in the untouched forests of the study area. This movement (looking for land in the untouched forests) to the forests is in some ways a result of this population growth. In place of implementing programs to help the poor the government concentrate on the cheapest, easiest, way to keep poverty out of sight and give the poor no other choice but to force other species out and themselves in. The poor are pushed in further and further and destroy more every time they must move on.

Population is continually growing in Utror village at the rate of 2.5 (Key informant). This increase in population leads to deforestation as when there occurs increase in population their family is converting to nuclear family system for that they need separate houses, wood for fuel, wood for space heating, they need more agriculture land and also they need wood for their domestic uses. So as the population increasing it leads depletion in the forest as before a decade the population of the area was 3000 and the area was covered with thick forest but now there occurred 25 % decrease in the forest land in the last decade.

4.3. HUMAN CAUSES:

Human causes of deforestation are those causes when the people used the wood for their own interest or for their own economic gain. Some of the main human causes of deforestation in Utror are given below.

4.3.1. Illicit felling for timber:

The population of the area has greatly increased and the quota of trees allowed by government to meet their needs is no longer sufficient. The local people therefore cut the trees required by them to meet their needs without permission. Even people from Dir and lower Swat who have exhausted their forests, come to these forest for removing trees illicitly. This timber quota is allotted to the local people for the construction and repair of residential buildings and for the domestic use of the entire community. The whole planning area is divided into 85 comports. The local quota allotted to the Utror village by

the government is 70 trees per year for the reconstruction, repairment and for the domestic use but in the case of emergency it may be increased according to the situation. On the individual level the local quota is 3 trees per house hold per year. The local quota is given to these people in the shape of trees but these people fell more trees than what ever is permitted to them. Thus the forest area is continuously changing to rangeland and agriculture fields. According to survey round about 20 to 25 % of the forest has been converted to the agriculture land and other land during the last decade.

4.3.2. Firewood collection:

Firewood collection can contribute to the depletion of forests, in the study area. The unavailability of natural gas and poverty lead to the full dependency of these people on the forest wood. Dense forests can produce a lot of burnable material without cutting down of trees. Use of wood as fuel has been the special focus of this study and 80 percent of all wood were used as fuel in the locale. The wood is used as a substitute for electricity, kerosene, natural gas and propane. For this purpose they cut more and more trees and this increase in wood cutting practices for fuel needs leads to depletion of forests. Since there is a lot of deforestation in Utror for different purposes of which 80 % is used as fire wood in each household. The different uses of forest wood as firewood per household are given below.

Table 4.7: showing uses of Forest wood as Fire wood

Total no in %	Space heating	Cooking	Water warming	Ironing cloths
100 %	30 %	30 %	15 %	5 %

Source: Household Survey conducted during fieldwork

4.3.3. Fire on forests:

The fire occur in the forest destroy most of the forest area. There are three basic reasons of fir on forests in Utror.

- 1) Accidentally
- 2) Set fire consciously.
- 3) Cigarette

About 70 % the fire occurs accidentally when these people go to their forest, they some time cooked meal for themselves some time burns fire to warm themselves and going back they leave the fire burns which spread in a large area and thus cause deforestation. During my field work once some friend (local people) went to forest and they cooked some meal for themselves. After eating the meal they come back to their houses and left the fire burned, so that fire become spread in the forest and burns about 2 canal of forest land. About 20 % the fire occurs when the local people are destroying the forests in their desperate struggle to wrest a living from an area whose natural resources are no longer sufficient or beneficial for their sustainable living. To avail the commercial activity on the forest land the local people want to vacate the forest land for this purpose they set fir on forests. And 10 % the fire occur in the forest of Utror when some people goes to the forest and smoked cigarette and leave the hashes burn and felled it down in the forest since from these hashes the shrubs get fire which then spread in the forests. So fire in forests in Utror is one the major cause of deforestation.

4.3.4. Space Heating:

The study area is the coldest area of the district Swat. In the winter season the temperature falls bellow the freezing point and reach up to -10 to-15 degree centigrade in the winter seasons. Therefore the people of the study area use forest wood as fuel for space heating to warm themselves. The male persons collect together in the Hujras of some one and sit around the Balar to warm themselves. While the women sit in their

kitchen or in their rooms around the Balar for warming themselves. The Balar exist in each house which work like heater and warm the rooms and Hujras.

Table 4.8: Winter-wise calculation of deforestation/House hold

S. No.	One house hold	No. of deforestation	Total no of trees/winter
		In maunds	In trees
1	Nuclear Family	150 maunds	2 trees
2	Joint Family	300 maunds	3 trees
3	Average	225 maunds	2.5 tree/family
4	Total no of household =800	$225*800= 180,000$ maunds	$2.5*800= 2000$ /winter

Source: Own Research

4.3.5. Looping for Fodder:

Broad-leaved trees are heavily lopped for fodder which is scarce in the area, particularly during winter months. These broad leaved trees are lopped before the winter coming because it is difficult to come out of their houses in the winter season because of high snow fall in the study area. Therefore the local people of Utror collect the fodder in the start of the winter and store it for the winter season.

4.4. INSTITUTIONAL CAUSES:

Institutional working on forestry and its sustainability has many flaws and disorganization in its own sphere, which is by itself a cause of deforestation. It also hampers the sustainability of forest in Utror.

4.4.1. Failure to establish adequate Re-generation:

From the point of sustainable forestry the most important factors are the preservation of the appropriate level of vigorous growing stock and the replacement of the trees that are cut down through effective regeneration most of the efforts of the department of forest are focused on retaining the already grown stock. However the regeneration is taking place in Utror forest but on a very slow and gradual level and it is not an adequate regeneration because it is not taking place on a large scale. If the high grazing rate and fires in the forest will stop then there will be no so much need of regeneration because these cattle of the local people destroy the fresh grown small trees. Or the forest department has to regenerate the plants on a large scale to control deforestation in the area.

4.4.2. Short coming of Forest Laws:

Our forest laws have remained materially unchanged since the nineteen century and do not any longer meet the current challenges of sustainable development of forest. We have only punitive laws meant for punishing or fine the local people and do not have any enabling legislation which mandates the government to provide funds for essential tasks and be responsible for carrying them out. The punishment or fines provided are nominal. Even these are seldom awarded. There are no strikes rules and law to stop these people from deforestation e.g. according to governmental role if some one cut down a tree from the forest he will be fined at Rs.6000 per tree. There is no fine on the cutting of the dry trees but when some one cut down a green tree he is fined Rs.6000 by the Forest Department. There are Forest Guards in these forests who informs the Forest Department that such a person has illegally cut tree from the forest and the Forest Department fines the mention person. But some time latter when the mention person do not submit the fine for a long time then the Divisional Forest Officer visit once a year to this area and establish there a court which is called "camp court". In this camp court all the fined people are collected and the Divisional Forest Officer make concession with the villagers and receive only 200 or 300 as fine from the persons who involved continuously in the process of deforestation, so it encourage the local people to cut down the trees and it leads to deforestation in the study area.

4.5. DIRECT CAUSES:

Department of forest spends a lot of effort in reducing the illicit felling of large trees for commercial gain through foot-patrolling by forest guards roadside forest check posts and mobile patrol squads. Though illicit felling of timber by organized mobile and armed timber thieves still occur on the Utror and Kalam hills yet there are numerous roadside forests check post and mobile. According to my key informant, usually one or two major incidents of illicit felling occur in a month and in most cases this theft is supported by the management due to corrupt staff. The bulk of pilferage occurs in much more sophisticated ways through undermining of departmental procedures. Some of the main direct causes of deforestation are given below.

4.5.1. High uncontrolled Grazing:

Another of the more devastating forces behind deforestation is high uncontrolled grazing. In the presence of grazing, forests can not regenerate naturally nor can they be planted successfully. The pastoralist people of the area who graze their live stock in the forests of their own area also the pastoralist from the lower Swat and from other districts comes to Utror to graze their cattle. These people mostly come to Utror in the month of June and July and then return back to their own areas in the month of November, in which the newly plants are being cultivated. Thus these cattle eat those newly cultivated plants which lead to deforestation in the study area. And it the return of this grazing the local people takes or demand cash money from these pastoralists which is then divided among the seven castes exist in the study area. Till a decade ago 0we did not realize the seriousness of the impact of grazing on forest regeneration. This was only realized after the high elevation forests of tal-la-mutai (Dir) were successfully regenerated under its intensive forestry project, with effective protection from grazing. Till then the failure of regeneration in such forest was a mystery and a pet topic for theorizing.

What we fail to realize is that sustainable management not only requires a limit on annual cut, but also the replacement of trees felled by many more young trees, either through the process of natural regeneration are by planting. But such replacement can't occur unless

the area to be regenerated or effectively protected from grazing. This can only be done with the participation of the local people.

4.5.2. Grass-cutting:

After the monsoon, grass is cut from the entire accessible area for making hay which is the major source of fodder for the local livestock during winter. Along with grass they also cut tree seedlings either unintentionally or even intentionally, to prevent the encroachment of forest trees on grass producing banks.

4.5.3. Cultivation of mountain slopes:

Shifting cultivation of mountain slopes, without providing protection against soil erosion, is even a more pernicious practice than open range grazing in Utror. Where as heavy grazing retards regeneration and destroys vegetation, cultivation of mountain slopes can cause the accelerated loss of soil, irreparable sapping the productivity of mountain land.

The main cause of the problem is population growth leading to intensification of pressure on land on the forests of Utror. As the population is growing the needs of the local people are increasing for this purpose these people cultivate the mountain slopes. The cultivation of mountain slope is a serious problem in the protected, and Guzara or shamilat forest.

4.5.4. Untrained persons cutting of trees:

When the people from the village go to the forest to cut down the trees. These people mostly want to cut the big trees but due to their lack of experience how to avoid the devastation of small trees, they do not take care of this. So when they cut the big tree it falls on the other small trees and these people are helpless to avoid the demolition of small ones. Thus the coming hope of increase in the number of trees becomes slaughtered. These people intentionally do not want to damage or demolish the small trees but due to their untrained work of experience they do not avoid this damage to the small trees.

During my field work the some 15 people told me that we cut big trees to get more wood, but with the cutting of big trees certain small trees are also cut down. In this way cutting big trees also leads to cut down the small ones with itself without the involvement of human labor. So this lack of experience leads to deforestation in the study area.

4.5.5. Wrong marking:

Under the forest law those trees only be marked for cutting, which are of old age or damage by something else. This marking is the duty of the local forester to mark the concern tree and to cut the concern tree is the duty of forest development corporation (FDC). But when these foresters go to the forests they mostly do not mark the trees which is of old age are already damage but marks the trees with out any concentration and mark the lush green trees or young age tree. Then the employees of the forest development corporation go to forest to cut the concern tree but these employee not only cut the marked tree but also cut the trees which are not marked by forest department but the tree is of old age or damage by any other reason. So this wrong marking of trees leads to deforestation in the study area.

4.6. INDIRECT CAUSES:

Indirect causes mean those causes which are not directly related to deforestation but due to the miss use of some particular thing which leads to deforestation.

4.6.1. Access of road:

The construction of new roads has a profound impact on the forest. In The study area the road lies at the top of the mountain passing through the thick forests. All roads that are constructed with the purpose of providing better access to less developed regions within the village tend to push up real estate values for non-forest uses and encourage land speculation and deforestation. Road in the study area, is among the most important type to access forest that facilitate deforestation. The people of the area take trucks to the forests to get wood for their domestic use and for construction purpose. An average household use 3 trucks of wood per year with out for the construction purpose.

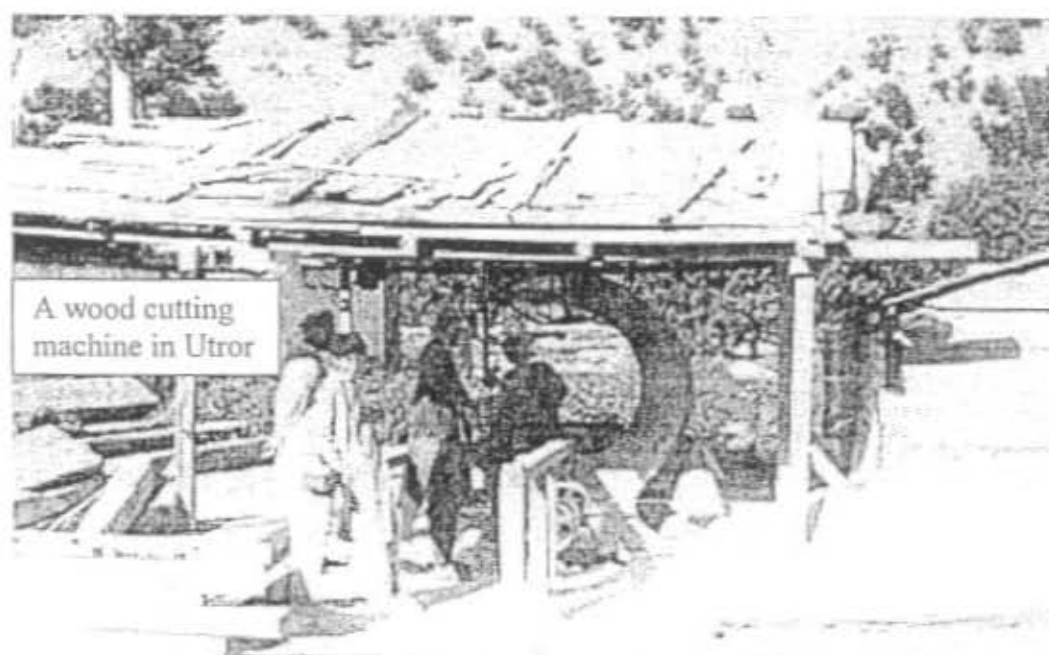
Plate: 4.2. Access of Road to Forest



4.6.2. Wood cutting machines:

Under the forest law there will be no wood cutting machine within 10 km to the forest area. But in the village Utror there are 11 (eleven) wood cutting machines. These machines are mainly used for making furniture, pillar, and *saleper* (wooden guarder) for roof. The furniture is used in the houses of the local people as their houses are fully made of wood i.e. from steers to the roof. On the other hand the *saleper* (wooden guarder) which they also used in there houses but some time export these *salepers* to the other parts of the district and out side of the district because these *salepers* are used in hotels and in houses also in other parts of the district or out side of the district the price of *saleper* is high i.e. one *saleper* sell rate is 8,000 in the national market. The *saleper* which are made of Diar wood are more costly than the other trees *saleper* that is the Diar wood *saleper* sell rate is about 12,000 in the national market because this wood can't become rotten even if used under water as in Utror and Kalam hotels this Diar wood has been used under water. Therefore these people makes *saleper* and furniture and sell it into other areas.

Plate: 4.3. A wood cutting machine in Utror



This is one of the example of wood cutting machine in the study area and there are eleven this type of machine in Utror which is one of the major cause of deforestation.

It is difficult to cut trees in large number when there are no machines, but due to modern technology and extensive use of machines have made it easy to cut the large amount of forest in short time also these machines are using for making all type of furniture in the study area e.g. if we want to cut a tree and made from it salepers or other furniture it is very difficult and takes a lot of time but due to these machines it is an easy work. So, the machines have increased the intensity and rate of deforestation.

4.6.3. Contractor system:

Till 1973 department of forestry used to sell standing trees to the contractors who would fell, convert, transport and sell the timber. This practice got badly discredited because the contractors would remove more timber from the forest than they had paid for e.g. if these contractor are paid for 2 trees then they cut 4 or 5 trees. The scandal

attained such proportion that the prime minister of Pakistan stopped this practice in all provinces in 1973.

In 1979 NWFP, there upon created the forest development corporation (FDC) for harvesting and sale of timber. Under this system the concern forest officer mark the tree to be felled according to their management plan. The contractor only performing the service to fell the tree, deliver the timber at road side to FDC and claim the charges. The ownership of the timber remains with FDC under the new system and the contractor do not enter to the forest as owners of trees but only as agents employed by FDC for performing specific task. Due to introducing of this system there occur some decrease in the no of deforestation.

But latter on this system was again changed and now the old contractor system exists in the study area. Now the forest department sells the standing trees to the contractors and the contractors cut much more trees than they are permitted. If these contractors are permitted to cut down 2 or 3 trees then they cut 4-5 trees instead of 2-3. This is one of the basic reason of deforestation in Utror.

4.7. CONSEQUENCES OF DEFORESTATION:

In some cases, deforestation can be beneficial. Given the right mix of social needs, economic opportunities, and environmental conditions, it can be a rational conversion from one type of land use to a more productive one. The tragedy lies in the fact that most lands that have been deforested in recent decades are not suited for long-term farming or ranching and they quickly degrade once the forest has been cut and burnt. Unlike the fertile soils of temperate latitudes, most forest soils cannot sustain annual cropping. The carrying capacity of the soil will not support intensive annual cropping without rapid, irreversible degradation. Similarly, intensive cattle grazing cannot be supported because grasses grown on forest soils do not have the same productivity levels as those on arable soils. In fact, there are very few forested soils in developing countries today that are available for future agricultural expansion, underscoring the urgent need to increase agricultural production on existing farmlands rather than converting more forests to farms.

The **social consequences** of deforestation are many, often with devastating long-term impacts. For indigenous communities, the arrival of "civilization" usually means the destruction of their traditional life-style and the breakdown of their social institutions. Individual and collective rights to the forest resource have been frequently ignored and indigenous peoples and local communities have typically been excluded from the decisions that directly impact upon their lives. The intrusion of outsiders destroys traditional life styles, customs, and religious beliefs.

In **economic terms**, the forests destroyed each year represent a loss in forest capital valued. As forest is a source of income for the entire community and by destroying the forests, all potential future revenues and future employment that could be derived from their sustainable management for timber and non-timber products disappear.

4.7.1. Deforestation and loss of bio diversity:

Probably the most serious and most short-sighted consequence of deforestation is the loss of biodiversity. The antiseptic phrase "loss of biodiversity" masks the fact that the annual destruction of millions of hectares of forests means the extinction of thousands of species and varieties of plants and animals, many of which have never been catalogued scientifically. How many species are lost each year? The exact figure is not known. But Deforestation is eroding this precious resource of biodiversity in the study area. According to the mountainian area conservancy project in Utror by IUCN there occurred 30 to 40 % decrease in the number of different species.

4.7.2. Deforestation and global warming:

Although all consequences of deforestation are potentially serious, perhaps the most serious consequence is that of Global warming due to the loss of trees. Earth has an atmosphere which contains a variety of gases, all in a delicate balance, to ensure life on Earth. One of these gases in Earth's atmosphere is carbon dioxide; a gas which helps moderate heat loss to outer space, they allow solar heat into the system, but discourage its escape.

The process of gas increase is quite simple. Carbon dioxide levels increase for a number of reasons; but one of the main factors contributing to the increase of carbon dioxide levels in Utror is decay of woody material. The only way to help moderate the levels of carbon dioxide in the atmosphere is through plant life. Alive plants and trees in Utror absorb the carbon dioxide from decaying plants and trees. With a decrease in trees and plant life (due to deforestation) in the study area, it is much harder to moderate these levels. Ultimately, the amount of carbon will increase due to a lack of plant life present to keep the carbon dioxide levels in check.

The increase in the carbon level and other greenhouse gas levels into the atmosphere leads to an increase in temperature as according to the local people the temperature of Utror was low as according to them a decade ago normal snowfall in winter season ranged from 15-16 feet. But nowadays this ranged has lowered down to 10-12 feet. And according to the local people they used to wear thick blankets in summer seasons even in the months of July and August because of severe cold. But nowadays they use light blankets or *chaddars* (light blankets) in the summer season So Deforestation in the study area is an important contributor to global warming.

4.7.3. Deforestation and soil erosion:

With deforestation comes soil loss. The removal of trees and shrubs exposes the soil which leads to erosion. Erosion leads to the removal of the thin upper soil layers. This, in turn reduces organic matter content and vegetation growth. Soils that lose organic matter can no longer retain moisture between rainy seasons; when precipitation increases, the soil remains unproductive.

The most significant type of soil loss is through landslides. Landslides induce soil loss by mass movement, and occur in natural forests and grasslands. Increased frequency of landslides often occurs in areas recently deforested. They remove soil under indigenous forests and that soil is then replaced by new vegetation cover.

Another form of soil loss is from intense rain after deforestation. When deforestation takes place the soil is left with nothing to protect it. Also, when trees exist the rain does

not often reach the soil at full impact, so the soil is very loose and can be easily washed away.

In Utror 20 to 25 % of forests land has been converted to other form of land since last decade and about 30 to 35 % of forests has been vanished away since the end of Wali Swat period. Now the erosion of soil mostly occurs in these deforested areas in which 70% occurs due to land sliding and 30 % occurs due to intense rain.

4.7.4. Deforestation and water shortage:

By 2050, two billion people, or 20 per cent of the world's population, will suffer from water shortages (WRI, 1994). Most of these people will be living in developing countries. As there occur deforestation in Utror it will lead to the shortage of water in future not only in Utror but in other parts of the district swat because the water of river swat comes from the Utror hills. Water shortage is a major health risk in terms of inadequate sewage disposal, poor personal hygiene, and insufficient potable water. Food security is threatened as irrigation water becomes scarcer. Without the protection of the tree cover, soils are exposed to the rigors of severe tropical climates and are rapidly eroded.

4.7.5. Deforestation and floods:

Flooding is a quite serious consequence of deforestation. Clearing the forest dramatically increases the surface run-off from rainfall, mainly because a greater proportion of the rain reaches the ground due to a lack of vegetation which would suck up the excess rainfall. Swat receives more rain than any other part of the province (NWFP) and there has been a marked increase in floods in the last few decades. Swat contains 20 % of forest land. Forest control floods to a great extent. In the previous year (2005) a lot of flood occurs in Swat in NWFP due to which many lives were lost and it was termed as a human created calamity in the form of deforestation. Because forest control and regulate the flow of water and acts against the floods. So the loss of trees plays a major role in the huge floods.

4.7.6. Others consequences:

- The beauty of the area is destroyed and thus the tourism in the area is affecting.
- The economic resources are getting lesser and lesser as the these forests are the main economic source of the area and the people are cutting and destroying their wealth by their own hands, more cutting of trees and less plantation will result in empty dry hills and the people of the area will be left with out any substitute to base their economy.

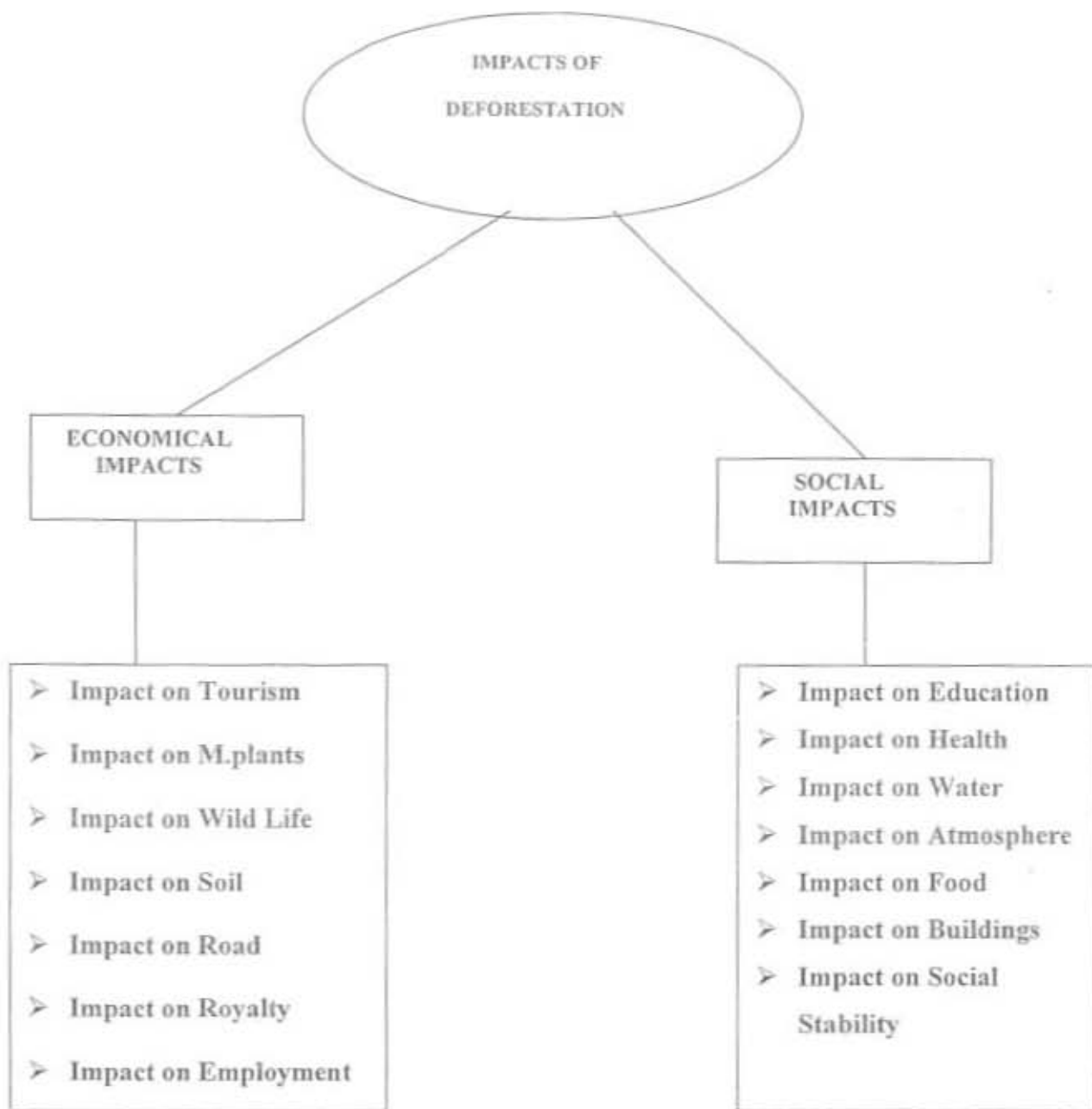
All above mentioned problems are affecting the life of the people and also their environment, if the process of deforestation is not stopped in the area then the green lush forest will be converts to dry mountains.

4.8. IMPACTS OF DEFORESTATION:

The impacts of deforestation are given in the following diagram. In this diagram the social and economic impacts of deforestation are drawn that how the deforestation impacts the social and economic life of the people in the study area.

4.8.1. ECONOMICAL IMPACTS:

What are the economic consequences of uncontrolled deforestation and forest-products scarcity? One outcome of a nation's forestry shortcomings can be a rising dependence on imported forest products. Already most Third World countries are net importers of forest products. The depletion of the country's forest resources is not only an ecological loss but it is in the end also an economic one. Forest resources have a great concern with the economy of a country or an area. As for as Utror is concerned the forest is a great source of their economy which they are losing in the form of deforestation. During my research work while collecting data and conducting interviews it came in my knowledge that it will impact their economy in future as well. The impacts of deforestation are discussed as follows.



Source: Own Research

Figure 4.2: Impacts of Deforestation

I) Impact on Tourism:

Eco tourism in the upper northern mountain areas of Utror is a great source of their economy. As Swat is a charming valley and a peaceful and fascinating tract in the lap of vegetative sky-high mountains, which are full of green forests, it is an everlasting source of attraction for the visitors. There are several mountain peaks ranging from 4500 to 7000 feet some of them are permanently covered by snow. Its beauty attracts tourists from all over Pakistan and from abroad. The tourist come to the study area and stay in their hotels, they visit the area in the local transport and buy the local material mostly honey and handicrafts. But due to deforestation the tourism will decrease and thus will impact the economy of the people of the study area.

II. Impact on medicinal plants:

The study Area is rich in biological resources. Medicinal plants continue to be an important source for the treatment of various ailments of human kind as well as livestock. People of various areas came up with a number of plants which they were using for curing malaria, pneumonia, cough and cold. These People know that these plants have a great commercial value, and therefore they export these medicinal plants to other parts of Swat District and hence it is a great source of income for the local people. All these medicinal plants are now diminishing with the deforestation activities in the area. Most of the medicinal plants grows at the bottom of the trees. So as the trees are cutting down these medicinal plants are also diminishing with them. Therefore their economy is badly affected due to deforestation.

III. Impact on Wildlife:

Utror forests are rich in biological diversity. In early days when the shrubs and bushes covered slopes and foothill areas, the wild animal were large in number. These forests are inhabited by duke, partridge, chakor and pheasant. The wild mountain sheep (markhor) is found in the high region on the mountains. Bear, panther, musk deer, golden fowl, black and brown bear are also found. Some of these wildlife's have great commercial value. The local people catch these wild animals and sell them. Some of wildlife are very rare in daily life so when they caught those, then sold it, at very high prices. In this way wildlife is also a source of income of the local population.

Deforestation can cause the destruction of the habitats that support this biological diversity. Because now the need for fuels, timber and other uses decreases the shrubs and trees so these animals have decreased considerably and which causes decrease in the income of the local people from that source.

IV. Impact on Soil:

Under normal circumstances trees and bushes and the forest floor act as a "sponge" for rainfall, slowing its overland and underground flow and releasing it back into the atmosphere through transpiration. This process promote the fertility of the land in which these local people cultivating different type of vegetables and then export it to other parts of the district Swat and out side of the district. These vegetable is thus the major source of economy of the people of Utror. The major effects of deforestation in Utror have been promotes erosion of soil with resulting negative impacts on soil fertility. Soil erosion has become a serious problem in many parts of the country, particularly in the northern region. Sheet and gully erosion were widespread, rendering most of the land unproductive and thus has a negative impact on their economy.

V. Impact on Roads:

Roads play an important role in the economy of an area. The road to Utror is one of the important source of the income of the people of Utror. These people are dependent on the products which they receive from Kalam or from Mingora. On the other hand these people are commercial agriculturist. They export their agriculture products to other parts of the District and out side of the District. They also export medicinal plants, fishes, mushrooms, honey etc to other parts of the District and get cash money with which they buy other livelihood products. They also smuggle the forest wood to other parts. All these are the sources of their income, which are being done through the Road.

But due to the deforestation there occur floods and land sliding and some time glashiers falls on the roads of Utror due to which the roads become damaged and are not able for transport. Since the roads takes a long time in repairing the people of Utror can not export

their goods to other parts of the District and out side of the District due to which their economy is badly affected.

VI. Impact on Royalty:

Royalty is nothing but the share of the amount between the local people and forest department. When the forest department cut a tree forms the forest and sell it in to the market then there is a share in the total amount of sale i.e. 40:60. Forty percent share takes the forest department and sixty percent share takes the local people. So this royalty is another source of their income. But as there occur more deforestation in the study area and there is no so much need of the forest department to cut a tree and sell it into the market because no trees are available for cutting purpose. Due to which their royalty is decreasing which leads a decrease in their economy.

VII. Impact on Employment opportunities:

The forests play an important role to provide employment opportunities to the local people in the shape of forest management and Plantation for Afforestation. More persons are required for the management of forest and its re-plantation. Therefore it is one of the best source of employment for the local people. Since these forests are under the control of government through Forest Department, the forest department gives and provides a lot of opportunities to the local people for its management and plantation. The forest management includes cutting of extra branches, protection of forest from thieves and from illicit cutting. But due to the deforestation process these employment opportunities are being demolishing. So it effects their economic situation.

4.8.2. SOCIAL IMPACTS:

The spread of agriculture, firewood collection, and unregulated timber harvesting are the principal immediate causes of forest losses. But behind these lurk more basic failures. Usually, uncontrolled deforestation is a symptom of a society's inability to get a grip on other fundamental development problems: agricultural stagnation, grossly unequal land tenure, rising unemployment, rapid population growth, and the inability to regulate private enterprise to protect the public interest. But this deforestation effects the people

social life some of the negative impacts of deforestation on the social life of the people are given below.

I. Impact on Education:

The more use of forest wood and great dependency on the forest wood has affected the interest of the local people in the sector of education. The literacy rate has been stagnant. In village like Utror under discussion there are four primary schools only with one middle and one high school at all. A report from a local person says that children educations has badly suffered or as parents are unwilling to send their children to schools because these people prefer to send their children into the forest rather than school as these people are fully dependent on the forest. Forests have become a source of income for these People.

Their children stop going to school and leave education in the middle, high level or even before completing the primary school education. They become the financial supporters of their families. They do work along their parent in the fields and in the forests. Because the major sources of income in this area are agriculture and forests. In search of employment, they some time head towards big cities like Karachi, Rawalpindi, Peshawar and Lahore, where they are employed in cheap hotels, workshops personal attendants, or become venders on pavements along the roads and they are deprived of education. The third reason of their being left uneducated is that the Utror is a very cold area and there occur snow fall continuously five months from November to March therefore the schools are mostly close in these five months because they can not go to school in such a cold seasons. Also the teachers are not interested to take classes in the winter season because there is no source of heating in the school. It is also very hard to get out of the houses in such a high snow fall. Therefore the education ratio is very low in the study area.

II. Impact on Health:

The loss of food and the pollution of water sources lead to health problems amongst forest-dependent communities like Utror, with women and children tending to suffer the most. Trees and other plants remove carbon (in the form of carbon dioxide) from the atmosphere during the process of photosynthesis. Both the decay and burning of wood

releases this stored carbon back to the atmosphere and pollute the atmosphere. When we breathe in this atmosphere it is full of carbon dioxide which leads to many diseases. On the other hand there are a lot of medicinal plants in the forests of the study area which are used for different diseases like Malaria, cholera etc. But due to the process of deforestation there occur decrease in the amount of medicinal plants and increase in the amount of carbon dioxide due to which the health of the local people are impacting.

III. Impact on Water:

As watersheds are destroyed and rivers become silted and polluted, forest peoples are deprived of the most vital resource for survival—clean water in the study area. Streams and rivers provide the primary source of potable water to the local people. In the valley Utror District Swat, damage to water sources by deforestation practices is often the single most serious issue identified by local people as it has an impact on all aspects of their daily life. Deforestation has also affected water catchments areas and the quantity and quality of water supplies they contain. There is extensive evidence of reduced dry season river flows and drying up of springs and seepages. There is also increased sedimentation of rivers and dams and frequency of flash floods. Major floods and landslides occurred in the study area and other parts of Swat and they have been attributed to deforestation in the district. Ground water supplies have also been depleted because of reduced infiltration of rainfall into the soil caused by deforestation. The lack of and poor quality water have, in most cases, been associated with incidences of many water-borne diseases such as typhoid, diarrhea, and cholera.

IV. Impact on Atmosphere:

Deforestation is often cited as one of the major causes of the enhanced greenhouse effect. Trees and other plants remove carbon (in the form of carbon dioxide) from the atmosphere during the process of photosynthesis. Both the decay and burning of wood releases this stored carbon back to the atmosphere. Which affect the health of the human being and pollutes the atmosphere. In the study area Utror the atmosphere is polluting



due to deforestation as there occurs more deforestation compare to other parts of the District Swat.

V. Impact on Food:

Deforestation has had a severe impact on food and other resources which form the basis of the livelihoods for many forest-dependent peoples like the people of Utror. In terms of food resources, wild meat and fish represent vital sources of protein. The IUCN mountainian area conservancy project shown that the availability of wild meat has declined in deforested areas the number of wild meat is also decreasing in the study area (IUCN Mountainian area conservancy project 2005). Fish, another vital source of protein, have also been severely affected by deforestation in Utror. The large quantities of soil sediments washed away from deforestation in the study area into streams and rivers causes high turbidity levels and siltation, combined with run-off of diesel oil used by deforested machinery and chemicals employed to treat the timber, causing dramatic declines in fish stocks. There were 10 fish ponds in Utror before 1990 as my key informant told me but there are only 2 fish ponds found in Utror now. Besides protein, deforestation affects other sources of vital daily food too. Numerous instances are affecting by deforestation as, fruit and vegetable gardens located in or on the edge of forests and destroying wild fruit trees and other edible forest plants. These resources are often lost altogether when forests are degraded in the study area.

VI. Impact on Buildings:

Deforestation and timber scarcity have an especially harmful impact on housing in poor countries. Now as the population of the third world countries is increasing by an alarming rate. As a result, individuals per house are increasing yearly and other resources like concrete are also not a cheaper way to construct houses in the hilly area like Utror. Also, the family structure is converting toward nuclear family system from the extended family system and they require more wood to construct more houses. Therefore, they use more wood but a time will reach when there will be no wood available for the construction of

their houses. At the moment, there are 6.5 individuals per house in Utror, but this number is rapidly increasing.

Table 4.9: Number of Individuals per house

No. of individuals	No. of total houses	Individuals per house
6200	800	6.5

Source: Own Research

VII. Impact on Social Stability:

In Utror, as local forest, food and water resources have declined, many forest peoples have had little choice but to move to towns in search of work, to move into resettlement schemes, to find jobs in the city industry—or to resist and struggle to protect their way of life and to regain their rights. Therefore these people mostly involve in the process of deforestation. Community values are being undermined and the fabric and integrity of forest communities disrupted by deforestation. Social tensions like conflicts on property and wood within and between communities are often exacerbated as a result.

The social gap and disparity caused by the arrival of large-scale deforestation is one of the major negative impacts identified by local people throughout Swat especially in the study area. Because there are seven castes in the study area some of them are influential on the others some people are poor while some of them are rich. The rich people almost more involved in the process of deforestation as compared to the poor people because the rich people have their own transport to go to the forest and cut more trees at a time. They also can support to give money to the poor for the trees cutting. The landowner and non-landowner both equally involve in deforestation. Illegal wood cutting in Utror reserves usually takes place as a result of deals struck between foresters and certain individuals. Some time the individuals of different castes fight with each other in the process of illegal wood cutting and some time these people fight to the forest guards or forester when the forest officers or forest administration caught them during cutting the timber. Thus the social stability is being disturbing by deforestation.

4.9. DETAILED INTERVIEWS CARRIED OUT:

1) Mr. Ayaz Malik government contractor in Utror.

He presented peoples perceptions of forest and inability of the colonial laws, based heavily on income generation to arrest deforestation. He asserted that the rich and not the poor are responsible for the cutting and selling of trees. However the failure of the government to curb woodcutting by providing other alternatives has heavily affected the poor people. The current forest management approaches do not consider social and economic dimensions as they are heavily tilted in favor of income generation.

He explained that there is a nexus between integrated family health and forest system in Utror. He suggests that a single illness in the household would push the entire family into the poverty trap, compelling people to resort to deforestation as a source of livelihood. He stated that the policies designed in isolation without the active involvement of communities to develop the mountainian areas would not yield the desired results, and referred to studies, which show that communities get 30-60% of their uncultivated food from forests.

2) Lal Bacha, Chairman of local zakat committee and former forester of Utror range,

He presented first hand information about deforestation based on the experiences of a government former forester. According to him poverty is the biggest cause. More than 80% of the population of his area is living below the poverty line. Lack of education and limited means of transport and communication has further aggravated the situation. In such a socio-economic environment, it is difficult for the people to appreciate the significance of forests. Secondly a huge population living in Utror, resort to trees for use of wood as the only fuel source available to them.

Thirdly commercial exploitation and harvesting of forests by the contractors with the full patronage of the concerned officials of the forest department is not only exploiting small forest owners with the weak financial positions but also causing deforestation no massive scale.

Fourthly, cattle grazing have increased with the increase in population, fifth forest fire burns down large trees and lack of enforcement of laws enables the culprits to escape without any positive action. Last but not the least, the menace of smuggling is increasing rapidly in the area. The timber mafia is using all possible means to smuggle wood for short-lined gains. Unfortunately, the department has failed to rectify the situation. He appreciated the efforts of the organizers to involve the owners, which were hither to be excluded, from the mainstream debate.

3) *Sheren Zada forester of Utror forest range,*

Said that the rate of deforestation in Utror is alarming (1.5% i.e. 80 hectares per annum). The underlying factors responsible for this is the felling of trees for financial considerations by individuals, community, state or timber mafia, change in land use. He also mentioned the management problems like uncontrolled forest fires, failure to reforest/regenerate cut over areas and lack of necessary funds for carrying out regeneration activities. Cutting of trees causes changes in microclimate and adaptive conditions.

It is also highlighted that the need to integrate gender considerations into forestry projects and forest related activities as women's tasks, which includes collection of wood for energy purposes, fodder and grasses for livestock, plantation on farms, seed collection, nursery establishment and collection and processing of forests products.

4) *Mr. Muhammad Asim Jamal Khan, Social organizer of IUCN Swat range.*

He expressed that the causes of deforestation in Utror are mounting population pressure resulting in unsustainable removals, dependence of 90% of rural and 65% urban households on fuel woods are primary source of energy, theft and corruption, suspension of forest management in these natural forest, unscientific grazing beyond carrying capacity, lack of adequate and sustained financial inputs, lack of socio-political commitment, floods, fires and storms, lack of sustainable development of fragile ecosystems, land use change of forests and wilderness area i.e. development pressures and management imperatives in the village.

Utror being a forest deficient village also confronts problems like arid climate, heavy dependence on irrigation water. The socio-economic scenario with rural poverty, tremendous population and lack of alternative source of energy in place of fuel wood and livestock dependence on forest (40%) has increased deforestation.

Chapter # 5

CONCLUSION, SUGGESTION AND RECOMMENDATIONS

5.1. CONCLUSION:

Deforestation is a major Social, economical, and environmental problem affecting many parts of the country especially the study area. Available evidence indicates that it has been accelerating at a very rapid rate. Large tracts of land have been deforested, exposing the land to further environmental damage and threat to their social and economic life. Deforestation has not been on only non-reserved or communal forestlands. Forest reserves have equally suffered in the past thirty years since 1969 when swat merged with Pakistan. The growing demand on forest resources is a threat to the future existence of these forests.

The Utror case study as presented in this report is a vivid example of how rapidly the forests are disappearing in swat. The situation in utror shows that extensive areas of woodland have been completely deforested while in some areas, the woodland has been considerably degraded. Many of the woodland areas have been converted into cultivated land or grassland. Some forests communal have completely disappeared while others are being threatened. Area which was up to 1969 fully covered by dense forests is now mostly devoid of trees. Because when the princely states of Swat, were merged in Pakistan in 1969, the people were exposed to a centralized departmental way of governance. It was difficult for the people to understand the new system while the government's functionaries remained distant from the people. This new situation created a gap between the people and the government. Poor planning, lack of good governance, increase in population, further aggravated the situation. This resulted in the Excessive deforestation in the region.

This study is an attempt in the field to the importance of forests the causes of deforestation and its impact on the social and economic life of the local people of utror,

so it becomes part of **Applied Anthropology** as it studies the practical implications of a community that is why people are inclined towards destroying their economic wealth and their social life through deforestation, and the theoretical side what is their opinion about deforestation according to the culture relativism as what seems to us a destruction may not be the same for the community and what we can see that mostly the community do not think that they accumulating it in a more better way as they said that agricultural productions are more beneficial for us as compare to the forests.

The area is rich in chir pine wood and facing a lot of deforestation and causing many after affects on the local community. The economic resources are studied to find out the relationship between forest and the community to judge the dependence of people on forests and the way they extract their livelihood from forest and thus the data of the study to deal with **Economic Anthropology**. Also the social impacts of deforestation are studied, that what are the impacts of deforestation on their social life, so it makes the research to deal with the **Social Anthropology**. The caste system is discussed to show the reason of community involvement in wood cutting, as the parameter of superiority in these different castes. More economic control over resources higher the social status of the group. The group which enjoy more stable economic condition are more stronger in their political as well as in social hold.

The importance of forests has been discussed that is the socio-economic and environmental importance of the forests then the categories of the forest in NWFP has discussed. After this the management system of forests, the rights and concession in forests, and the economic functions of the forests have been discussed. At the end of the chapter the social and economic impacts of deforestation, uses of forest products in the area and its re-plantation has discussed.

Forests have many importances in the social, economic life of the people and also have importance for the environment. Forests play an important role for the fulfilling of economic need of the people therefore the economic functions of forests has been discussed. While deforestation has so many negative impacts on the people social and economic life, so these impacts are also been discussed.

I also discussed the causes and consequences of deforestation. Deforestation has a lot of causes but some of them are very important and can be eliminated by means of some proper management. Deforestation has also a lot of negative consequences which are discussed in detail.

The causes of deforestation in Utror District swat elsewhere in Pakistan are multiple and complex, but all are a result of human intervention. The leading and more direct causes are settlement and expansion of agriculture, unavailability of alternatives, unawareness, population growth, fuel wood scarcity, poverty, and high uncontrolled grazing. Other factors which also play a significant role in deforestation are uncontrolled bush fires, timber production, wood cutting machines, contractor system, access of road to forest, and breakdown of the traditional management system. These factors interplay in the process of degrading the woodland resources and/or converting them into non-forested lands.

A careful analysis of these factors, however, shows that they are a result of survival strategies by the local people. Poverty and lack of sufficient resources are fast driving the majority of the people into the woodlands in attempts to eke out a living. In so doing, they are clear-felling the woodland for agriculture through the shifting cultivation system. The people also see a chance to profit by selling wood or medicinal plants in a commercial market. So they fell live trees wantonly, not even sparing the forest reserves.

Seen from another angle, human population growth is also a major factor in the deforestation process. The rate of population growth in Utror District swat is more, and is mainly encourage deforestation to meet immediate means of grass production and cultivation of food staple. Consequently agriculture runs counter to the objectives of the betterment of forests.

People recognize the precious nature of trees but due to its less number and distant out put their preference is agriculture. Because the agriculture productions are more beneficial than forest as they sell their agriculture productions each year in the other parts of the district and also out side of the district and earn money, while to get the benefits of

the forest chir pine trees as they takes 50 to 60 years to get mature and can be used. Therefore these people are more interested in agriculture rather than forests.

One of the major cause of deforestation in Utror is unavailability of alternatives. In Utror there is neither governmental electricity nor the natural gas is available. So the unavailability of the electricity and gas is one of the leading cause of deforestation in the study area.

Another of the more devastating forces behind deforestation is high uncontrolled grazing. In the presence of grazing, forests can not regenerate naturally nor can they be planted successfully. Other causes of deforestation are discussed in detail. Taking into consideration all the arguments that have been put forward in relation to the causes of deforestation in utror the following observations may be made:

- 1) Population growth caused mainly deforestation in the study area. As the population is increasing the need more fuel, agriculture productions, more houses, and many more.
- 2) The breakdown of the traditional management system of the forests in utror leads to deforestation as in the time of wali (king) swat these forests were fully covered by lush green trees.
- 3) Market exploitation of forests particularly for the smuggling of wood has been done haphazardly, and attempts by the government to regulate this activity have failed to curb the illegal smuggling business.
- 4) Current efforts to address the problem of deforestation at national, district, community and individual levels are inadequate.
- 6) Deforestation in utror in district swat generally is closely linked to the agriculture expansion for the economic need.
- 7) The unavailability of alternatives is the most leading cause of deforestation in the study area.

From the above observations, the general conclusion that may be derived is that deforestation in utror swat is a complex process. To blame the farming systems, expansion of agriculture, unavailability of alternatives, commercialization of forest products, poverty and population growth as being the principal causes of deforestation is to do injustice to the people and the problem itself.

5.2. SUGGESTION AND RECOMMENDATIONS:

The major sources of fuel wood supply in Utror are natural forests and farmland trees. And the major sources of income are smuggling of wood and Agriculture production. On the basis of my research I would like to give the following suggestions and recommendations to improve the quality and quantity of forests and to stop the process of deforestation in utror swat.

- These forests have been over-utilized for fuel wood and agriculture over a considerable period of time. This has resulted in their degradation rendering them treeless over large areas. Active efforts are needed for their rehabilitation/reforestation as well as for the conservation and sustainable management of the remaining forest resources.
- The best alternative to fuel wood is more fuel wood, thus, plantations should be carried out in every possible site, keeping in mind the ecological amplitude and water requirements of the species.
- One of the best alternatives to stop deforestation in utror is to provide electricity and natural gas to these people.
- Fast growing and multipurpose agricultural species should be introduced to address the immediate needs of the income problems in the study area.
- Environmental education and awareness should be included in schools, in order to develop a sensible and responsible society who cares for its environment and of their social and economic life.
- Alternative sources of energy like solar energy, wind energy, hydroelectricity generation, and natural gas should be the top priority of the district government to stop deforestation or even to reduce it.

- Special prizes should be awarded to successful planting tree farmers or village organizations, to encourage tree planting programs in the district.
- The Forest Department must take these forests under its control and develop a participatory management plan in combination with the local communities and all other stakeholders for conservation and sustainable management of the degraded forests in district swat.
- The productivity of the existing fuel wood sources must be improved through a conservation and sustainable management process.
- Encourage NGOs to take the leading role in organizing the community, creating awareness in recognizing the importance of forest and other natural resources for the benefit of present and future generations.
- A network of nurseries should be developed to ensure the supply of plants to farmers in proper time for tree plantation.
- One answer to the problem of deforestation is to build houses out of non-wood materials, such as brick, stone, concrete, and fiberglass. These materials have the additional benefits of being fireproof, waterproof, and pest-proof.

Is it possible to stop deforestation? It is unlikely in the foreseeable future, but the rate of deforestation can be slowed down considerably and its negative socio-economic and environmental impacts can be minimized. Based on the most recent estimates of the rates of deforestation in the study area, and assuming that 25 per cent of forest losses are attributable to agricultural expansion in the last decade, it is estimated that over the next 10 years the agriculture sector will require an additional 30 percent of the forest land in the study area. The agriculture sector must be challenged to find appropriate solutions.

Any effort to combat deforestation must be based on a complete understanding of who the agents of deforestation are and what its direct and underlying causes are. The circumstances vary from country to country and from region to region. Through improved protection and management of the remaining forests, through well-targeted socioeconomic development programs, and through policy and institutional reforms; deforestation can be brought under control in the study area. While forests will continue to be lost for decades to come, it is critically important that the fight against deforestation

be done in the most rational way possible. Only then will the long-term benefits to humankind be favorable and the costs to the environment minimal.

It is time for all people of that community to renew their commitment to live in harmony with these lush green forests before they are lost forever.

Glossary

Alo	Potatoes
Burqa	Veil used by women for seclusion
Balar	Barrel
Chadar	Light Blanket
Chat	Roof
Dastarkhwan	Dinning Mate
Dawter	Owned land of the local people
DFO	District Forest Officer
Dinni Taleem	Religious education
Desi	Local, native
<i>Gabin</i>	Honey
Ghee	Classified butter
Ghopi	Cabbage or cauli flower
Glaciers	A large mass of Ice formed by snow
Guz	Walnut
Hujra	Man's house
Jangle	Forest
Jirga	Local meeting, council
JFMC	Joint Forest Management Committee
Jwar	Maize

Kacha	Mud/squatter settlement
Kambal	Big Blanket
Khel	A clan, section
Koila	Coal
Kor	House/family
Laltain	Candle
Locates	Plums
Madrasa	Religious school
Malik	Headman, Chief
Manra	Apple
Markhor	Wild mountainian sheep
Masjid	Mosque
Mingora	City of Swat
<i>Moqbara</i>	Graveyard
Mulvi	Priest, religious leader
NCP	Non custom paid
Pakool	Woolen cap
Parvai	ladder, Steer
Pukhtoon	The Pathans
Pukka	Melted or Cemented
Purdah	Seclusion/Veil
Pushtoo	The language of Pathan
<i>Qabr</i>	Tomb

Qahwa	Green tea
Qamiz	Shirt
Saag	Spinach, Green vegetable
Sakhti	Noon
Salepers	Wood guarder
Shalwar Kameez	Local dress
Shamilat	Communal property
<i>Tash</i>	Cards
Taveez	Emulates
Tepar	Turnip
Topee	Cap
Wali	Ruler/King
Wana	Tree
Wawra	Snow
Zamindar	Farmer
Zangal/Jangal	Forest

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