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# International Journal of Advanced Research in Biological Sciences

ISSN : 2348-8069

www.ijarbs.com

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## Research Article



### Causes and effects of deforestation in Barawal valley District Dir Upper Khyber Pakhtunkhwa Pakistan

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#### Abstract

Deforestation remains one of the most intractable environmental problems in the current Scenario. Pakistan also faces serious problem of depletion of its forest reserves. This study was conducted in Barawal valley of district Dir upper, Khyber Pukhtunkhwa, Pakistan. The study area was visited during the summer season i.e. May to September, 2010 along with the Forest Department staff. The basic aim of the present study was to get a thorough understanding of the causes and impacts of deforestation, so as to deduce appropriate measures for mitigating such hazards in Barawal Valley, Dir (Upper). For the data collection, 60 respondents were selected randomly throughout the study area and also observe the forest directly with forest department staff. The analysis of the data was carried through statistical methods (percentage and average) and pie-charts. The study indicates that the main causes of deforestation in the study area are poverty, unawareness of the local community, population pressure, no strict implementation of forest Acts and Ordinance, high demand for household uses, smuggling and no alternate source for fuel and house hold construction. It was also observed in the study area that the main impacts of deforestation are flood, erosion, land sliding, declining of wildlife, pollution and lowering of water table. In the last, it is recommended that there is need of proper awareness in the society and proper control measures must be taken to assure common people that Forest is for the well being of humanity and deforestation is destroying humanity.

**Keywords:** Deforestation, deforestation, are flood, erosion, land sliding, declining of wildlife, pollution, lowering of water table.

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## Introduction

Bacillary dysentery and enteric fevers continue to be Mother earth on which humans have lived for thousands of years is under increasing threat from pollution, Global warming and the most important of all is Deforestation. One can easily note the changes taking place around us in each and every field of life, including our environment. Environmental issues affect every life on this planet from the smallest organism to the human race. (NASSD, 2003).

In the mountain areas of Khyber Pakhtunkhwa, trees and forest resources always have a place in rural livelihoods. People rely on forests for fodder for

livestock, timber for houses, and above all for fuel wood, which is the most important, and often the only source of energy for cooking and heating for most rural households. In addition, forest people collect diverse non-timber forest products for use at the household level and for cash income (Khan & Nagvi 2000). Farming is the most important subsistence oriented livelihood in the mountain areas of Pakistan. To meet their subsistence, the farmers have to practice intensive method of cultivation, and bring marginal land under cultivation through encroachment of forests and of steep slopes (Hussain, 2003; Steimann, 2005).

## Research methodology

### Description of the study area

The study was conducted in Barawal valley at District Dir upper of KPK. The area is mostly mountainous. Majority of People depend on forest for fuel wood and other domestic requirements. Maize, Wheat, Rice, and other vegetables are grown. Conifer like Cedrus Deodar, Abies Pindrow, Picea Smithiana and Pinus Willichiana. Broad leaves species like Quercus Incana, Quercus Diltata, Morus Alba and Populus Species are the major Trees .

### Location and Area

Total area of Dir Forest Division is 100,929 ha in Dir and Samarbagh Forest Ranges. The area lies between North latitude 34° 37' and 35° 21' and East longitude 71° 30' and 72° 021' covering survey sheets numbers 38M/12, 38M/15, 38M/16, 38N/9 and 38N/13 at scale 1:50,000. It is bounded by Chitral District on the North, Dir-Kohistan on the North-East, Afghanistan on the West, Warrail Forest Range on the East and Malakand and Bajaur Agencies, on the South-West.

There are three planning units to Dir district that are,

Dir Planning unit (26,072.0 hac).

Barawal planning unit (46,337.0 hac).

Samarbagh planning unit (28,526.0 hac).

The focus of this research is Barawal planning unit that is composed of total 210 numbers of compartments divided into different blocks, which is in Dir (upper).

Atanr block.

Barawal block.

### Physiography

The area is dominated by mountains and hills, which are part of the ranges of the eastern Hindukush. The terrain of the area, is uneven and rugged. The lowest point of the area is 761 meters at Khanzada while the highest peak of the area is 3,300 meters at Lawarai peak. Erosion and landslide are common due to steepness and slopes and heavy degradation of vegetation.

## Materials and Methods

### Data Collection

Data was collected from individuals of community and other concerned, departments, organization, NGOs, etc.

### Secondary Data Collection

Official Documents and previous Survey reports of Forest Department, FDC, Projects and NGOs etc.

Library, Internet, Brochures and Guide books about the study area.

### Primary Data Collection

Questionnaire.

Specially designed pre tested Questionnaire.

Personal Observations and survey.

Direct Interviews from Experts attached with the Organizations working in the study area.

Photography.

### Questionnaire

The Pre designed and Pre tested questionnaire was used as a survey instrument.

### Data Processing

Statistical methods were employed for the analysis of data like averages and Percentage. Besides this computer Programmed, such as Ms Word and Ms Excel were also used

<b>TIME FRAME FOR RESEARCH</b>	
15 <sup>th</sup> May to 15 <sup>th</sup> June 2010	<ul style="list-style-type: none"> <li>▶ Desk Research (Secondary Data Collection).</li> <li>▶ Finalization of Questionnaire for Primary Data Collection).</li> <li>▶ Develop Methodology for research.</li> </ul>
16 <sup>th</sup> June To 15 <sup>th</sup> July 2010	<ul style="list-style-type: none"> <li>▶ Field Visit.</li> <li>⇒ Primary Data Collection through Questionnaire.</li> <li>⇒ Detail Interviews with officials of Forest Department.</li> <li>⇒ Detail Interview with the Concern officials of Organizations working in study area.</li> <li>▶ Transferring of Data into Excel Data Sheet.</li> </ul>
16 <sup>th</sup> July To 31st August 2010	<ul style="list-style-type: none"> <li>▶ Compilation of Data.</li> <li>▶ Conclude Results.</li> <li>▶ Recommendations Prospects for the study.</li> </ul>

## Results and Discussion

The results of data analysis and discussion are presented in the following four sections. First section provides information about Respondents.

Second section presents a detail description about causes of deforestation, area which is more liable to deforestation, Forest degradation due to natural

hazards, increase/ decrease in deforestation in last 5-10 years, lack of awareness about deforestation.

Third section described role of Police Department, role of Forest Department, role of local committees and role of layman in controlling deforestation. Forth section is about impacts of deforestation on natural environment, social environment and economy.

### Causes of deforestation

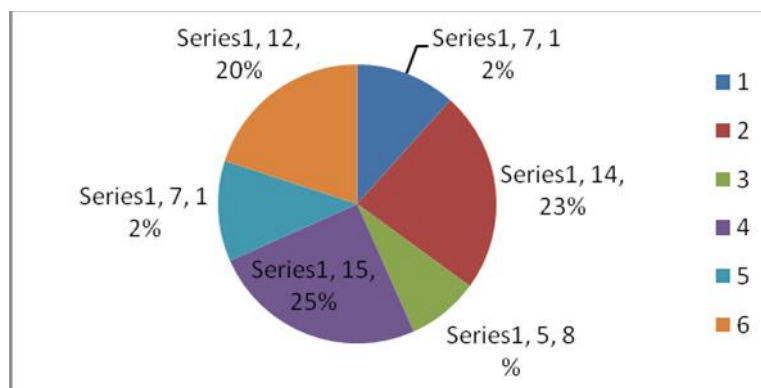
Table 4.4

<b>Distribution of respondents according to the causes of deforestation.</b>			
<b>S.NO</b>	<b>Causes of deforestation</b>	<b>No of Respondents</b>	<b>Percentage</b>
1	No Strict implementation of Forest Acts and Ordinance	7	12
2	Poverty and low-socioeconomic condition of area	14	23
3	Local People are unaware of the threats to deforestation	05	8
4	Population pressure/Population has increased	15	25
5	Smuggling	7	12
6	Demand for timber, fuel wood, fodder and agriculture	12	20
Over all		60	100

Source: survey data 2010

The data is also analyzed for causes of deforestation which indicates that (12%) respondents were viewing deforestation because of, no strict implementation of Forest Acts, and Ordinance whereas (23%) people consider deforestation is due to Poverty and low Socio-economic condition of area and (8%) people

consider deforestation due to the reason that local People are unaware of the threats to deforestation. However, majority (25%) viewed it because of Population Pressure whereas (12%) of the population considered deforestation due to smuggling while (20%) viewed deforestation due to demand for timber, fuel wood, fodder and agriculture.

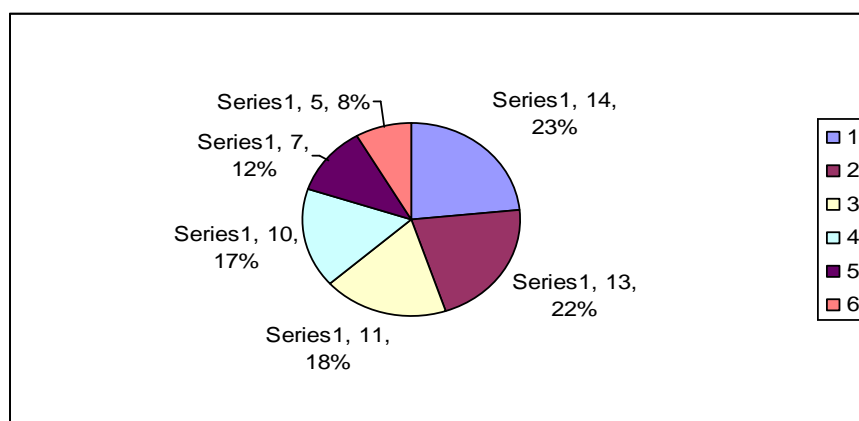


#### 4.6 Forest degradation due to natural disaster

Table 4.6

S.NO	Natural Disaster	No. of Respondents	Percentage
1	Snow fall	14	23
2	Heavy and rains Floods	13	22
3	Land Sliding	11	18
4	Forest fire and Lightening	10	17
5	Wind and Strong Storm	7	12
6	Diseases	5	8
Overall		60	100

Source: survey data 2010



The data analysis revealed that majority (23%) of deforestation is due to Snow fall whereas (22%) of degradation is due to Heavy rains and floods. The respondents viewed that from Land sliding (18%) Forest Fire and Lightening (17%) degradation can also

occurs. However the People considered that degradation from Wind, Strong Strom and Diseases (12%), (8%) respectively occurred. The data clearly shows that large number of Forest degradation (45%) is due to Snow fall, Heavy rains and floods.

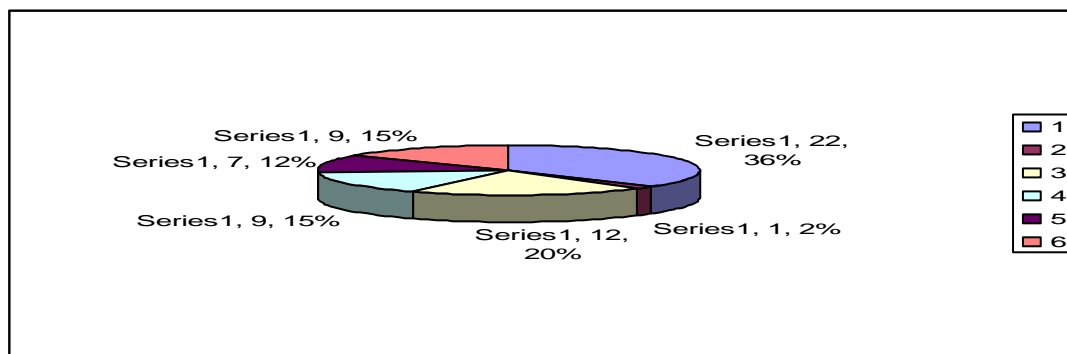
**Current situation of deforestation****Table 4.7**

<b>S.NO</b>	<b>Current situation of deforestation</b>	<b>NO of Respondents</b>	<b>Percentage</b>
1	Increase	22	36
2	Decrease	1	2
3	Fuel Wood	12	20
4	Construction, Buildings and Furniture	9	15
5	Illicit Cutting	7	12
6	Poverty in Areas	9	15
	Over all	60	100

Source: survey data 2010

The data indicates that majority (36%) of the respondents opinion is that, there is increase in deforestation whereas only (2%) of respondents considered that, there is decrease in deforestation. However the respondents considered that (20%) increase due to Fuel Wood and (15%) increase

because of construction buildings and Furniture. The remaining (12%), (15%) respectively increase in deforestation is due to illicit cutting and Poverty in area. The analysis clearly revealed that in the study area there is increase in deforestation.

**Lack of awareness about deforestation**

Respondents suggested that Unawareness is the major factor of deforestation. The local people do not know the actual value of forest trees; they consider trees only for their tangible benefits. They are not known about the ecological worth, they are not aware about the role of forest in Wildlife conservation, Watershed management, Soil conservation, Ecotourism, Carbon sinking, Balancing of ecosystem and other ecological process. The local people do, not know about the negative impacts of deforestation, like Global warming, Soil degradation, Floods, Wildlife habitat destruction, Siltation of dams and other ecological

disturbance which disturb the natural balance of ecosystem like Seasonal variation, Sever floods in Pakistan, India, China etc. Recently on August, 29, 2010 Pakistan is badly affected by flood.

**Forest development corporation role**

The FDC have significant role in deforestation because of their duty to mark forest trees and plantation. This corporation has made no proper plantation but only made improper marking of forest trees. The FDC has joint hands with the contractors, and thus the FDC involve in the illegal and blindly cutting of forest trees.

### **The increase in deforestation is due to non-conviction of offenders (the accused charged for the offence against the forests)**

Yes, there is increase in deforestation due to non-conviction of offenders. Respondent's views are in the following points, who pointed out that due to non-conviction deforestation increased.

1. In cases instituted by Forest Department, there is almost no evidence hence the courts has no alternative but to acquit accused involved in forest offences.
2. The Forest Department does not prove the evidence properly, hence the accused are acquitted and the forest offenders and other members of society around him are encouraged to make the forest offences.
3. The Police and Forest Department always give safe passage to the big fishes involved in the forest offences.
4. The complaints of Forest Department as well as police against offenders are either baseless or failed due to weak prosecution of cases.
5. Yes, the prosecution side is weak; Judges are unable to collect proper evidence to charge the forest offenders. It is due to the weak education of the Forest Department officials.

### **Role of forest department**

According to the survey there is no proper role of Forest Department in the control of deforestation. Respondents viewed are in the following points.

1. The Forest Department is one of the most responsible figures for the rapid deforestation; about 80% of deforestation is occurred with the instigation of forest department.
2. Forest Department has controlled deforestation up to some extent but smuggling badly affected its role.
3. Corruption in Forest department is increasing due to which the role of the Forest department in deforestation is negligible.
4. Forest Department has no practical management of forests.
5. Besides these, some respondents viewed that there is limitation of Forest Department, such as large area of forest, which are not under the control of less numbers of managerial staff, no proper vehicles for patrolling forest area and no cooperation of other departments e.g. police etc.
6. In short both Forest and Police Departments is the biggest pest for Forest.

### **Role of police department**

There are contradicting views of respondents about Police Department in controlling of deforestation. According to some respondents Police Department play positive role in controlling of deforestation while some opposed it and blame police that they are equally involved in deforestation, by providing support to smuggler and timber mafia. Some respondents say that due to limited resources they can't play the role properly. According to some respondent's lack of coordination between Police Department, Forest Department and layman is the major cause which hampers deforestation control. Some respondents views, that the Police Department know about all facts of is, where illegal cutting of forest trees is in practice, how and through which agencies felling is carried out, and through which means and routs illegal timber is smuggled. The Police have their own share with Timber mafia.

### **Role of local committee (vdc,s)**

The local committee (VDC, s) play an important role in the protection, conservation and preservation of forests. It is said that, Forest is not about trees but forest about society. To involve local people in decision making of forest protection, deforestation control, forest management and conservation of forest the local people can play an effective role. Today the concept of joint forest management is spreading widely throughout the world, including in Pakistan at District Hazara division the JFM become fruitful and effective. JFM simply means that forest is, of the people, for the people and by the people. It opposed the concept of fencing forestry which keeps local and common people away from forest. We must aware the people about the actual worth of forest through social, community forestry and put this thing in the mind of people that if you cut forest and not replace or plant a tree what your future generation will done and how much siltation will occur which effect the lifespan of dams. Similarly what will be the effects of forest on wild life, watershed and other ecological process? Respondents viewed that the control of deforestation is possible only when we involve local people in the management of forest.

## Role of community/ layman

The data revealed that Layman can play an important role in controlling of Deforestation by informing Forest or Police Department about the illegal cutting and smuggling of forest product. The Forest Department should also encourage the common people through rewards those who inform about the illegal cutting and smuggling of forest products. According to the respondents some time local people inform Forest or Police department due to domestic disputes and for taking revenge from his enemy. Few respondents urged that the role in this regard is very less and local people have no interest about informing forest or police department because of various reasons such as internal clashes may erupt and become the reason of domestic's disputes. Some respondents viewed that Government agencies i.e. police or forest department do not give any attention to such information by which the lay man discourage where as the other respondents viewed that the lay man has no role. But as a responsible person of society this is the duty of us to think about national objective not for individual. We should adopt holistic approach not tunnel approach, to think positively and collectively not individually. Not to think about the tangible benefits but to think about intangible benefits, not to think about ourselves, to think about our future generatio.

## Conclusion

1. The study indicates that (83.33%) of the respondents have the joint family whereas (16.67%) have the single family.
2. The study revealed that (30%) are involved in the agriculture.
3. The respondents suggested that the literacy rate in the study area is (49%).
4. Most of the respondents viewed that in Dir (upper) Forest Division Barawal is the more deforested area.
5. Majority (80%) of respondents is of the views that, population pressure, poverty, demand for timber, fuel wood, fodder, agriculture and smuggling are the major cause of deforestation in the study area.
6. The study revealed that (40%) Forest Department are involve in corruption and smuggling whereas (25%) of respondents viewed that large area of Forest, which is not under the control of less managerial staff.

7. The majority of respondents (63%) viewed that Forest degradation are occurred due to snow fall, heavy rains, floods and land sliding whereas (37%) of respondents viewed that Forest degradation are due to Forest fir, wind and diseases.

8. The study indicates that majority (98%) of respondents viewed that there is increase in deforestation where as only (2%) of respondents viewed that there is decrease in deforestation.

9. Unawareness is the major factor of deforestation.

10. Forest Development Corporation (FDC) up to some extant involve in deforestation.

11. The Forest Department does not prove the evidence properly, hence the accused are acquitted and the Forest offenders and other members of society around him are encouraged to do Forest offences.

12. Forest Department is mainly responsible for deforestation.

13. The respondents viewed that the Police Department are equally involved in deforestation, by providing support to smugglers and timber mafia.

14. VDC, s (village development committees) plays an important role in the conservation and preservation of Forests but in Barawal valley its performance is poor.

15. Deforestation becomes the cause of environmental, social and economical problems.

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