Social and Environmental Impacts of Conflict in Swat Region

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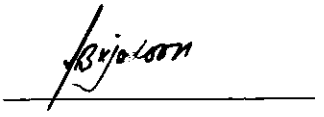

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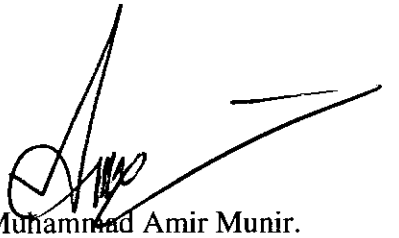

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SOCIAL AND ENVIROMENTAL IMPACTS OF CONFLECT IN SWAT REGION

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List of Abbreviations

HMX: HIGH MELTING EXPLOSIVES.

TNT: TRINITROTOLUENE.

RDX: RESEARCH DEPARTMENT EXPLOSIVE.

OCD: ORGANIC CARBON DETERMINATION.

M.O: MILITARY OPERATION.

SEEP: SWAT ELEMENTARY EDUCATION PROGRAM.

PTSP: POST TRAUMATIC STRESS DISORDER.

HRDS: HUMEN RESOURCE DEVELOPMENT SOCIETY.

MDP: MALAKAND REHABILITATION PROGRAM.

SRSP: SARHAD RURAL SUPPORT PROGRAM.

CCS: CADET COLLEGE SWAT:

PWD: PERSONS WITH DISABILITIES.

EPS: ENVIROMENTAL PROTECTION SOCIETY.

LIPS: LIVE LIHOOD IMPROVEMENT PROGRAM IN SWAT.

CMDO: COMMUNITY MOTIVATION AND DEVELOPMENT ORGANIZATION.

PMD: PAKISTAN METROLOGICAL DEPARTMENT.

WHO: WORLD HEALTH ORGANIZATION.

HPLC: HIGH PERFORMANCE LIQUID CHROMOTOGRAPHY.

SPME: SOLID PHASE MICRO EXTRACTION.

MOU: MEMORENDUM OF UNDERSTADING.

UNDP: UNITED NATION DEVELOPMENT PROGRAM.

Chapter 1

Introduction

1.1 War

War is a phenomenon of organized violent conflict typified by extreme aggression, societal disruption and adaptation, and high mortality. There is some debate about other characteristics, but in general there is agreement that war involves at least two organized groups, is a premeditated activity at least on the part of one side, and at least one of the group uses violence against the other.

The horrors forced by war are known to all of us and so is the destruction caused to human lives. Forced displacement, damage to infrastructure, destruction of education system, damage to social lives, health problems, food scarcity, and adverse environmental impacts are some major problems caused by these armed conflicts among countries and among different groups with in a country[1]. Due to the urbanization the distinction between military targets and civilians are lost and modern phenomena of infrastructural war occur in which civilian population water systems are strategic targets[2]. Modernizations of militaries were one of the major causes that increased loss of civilian deaths as a result of armed conflict[3].

Death rates during the wars reached high levels in the 20th century, due to the increase in deaths proportional to increases in population. The death rate of civilians was twice (34 million) as military deaths (17 million) in World War II. Large proportions of the deaths were due to indirect causes related to ongoing war, which included insufficient and unsafe water supplies. Restricted electricity supplies, poor or non-functional sewerage deteriorating health services with

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[1] (Miguel et al) The long run impact of bombing in Vietnam, *J.Dev.Eco* 1-15.

[2] (Grundy et al.2008)(A call for comprehensive pre-event public health analysis of war and defense policy)

[3] (Grundy et al.2008) (Defense policy.. *Of. Peace. Conflict. and development.* 33, 123-145)

mortality during complex emergencies such as digestive tract diseases, respiratory infections, new born death causes and malaria[4].

People living in the war zones or even living near to major impact zone faced many problems like deaths, injuries, loss of infrastructure, loss of livestock, economic losses and even loss of their education period because of security situation or due to destruction of educational system[5].

Different studies revealed that the cities experienced heavy bombing during World War II are same today with the cities not bombed in Japan and Germany[6]. So it revealed that the civilizations recover quickly to the before war situation[7]. This phenomenon was even seen in the US- Vietnam war in which Vietnam experienced the worse bombing of military history still have no effect on its poverty level.[8]. But it is important to conclude the main damaging portion of the war for the reconstruction process after the conflict. Poor people in any country engaged in war suffer the most so as a result the poverty persist and even intensify[9].

1.2 Internal conflicts & civil wars

The number of civil wars increased 12% between 1946 -1991. This rate of civil wars in many countries was very high during the period of 1960. More than 20% of world nations experienced at least ten years of civil wars or internal conflicts. These internal conflicts within a country caused at least 10,000 deaths in a year and this rate increased day by day[10]. Internal conflict is defined as war with in a boundary of a country against some intra state elements or organized groups which enjoy some degree of intra-group authority and unity and whose demands and

[4] (Grundy et al., 2008)

[5] (Quinn et al., 2007)

[6] (Davis et al., 2002)

[7] (Brakman et al., 2004)

[8] (Miguel et al. 2005)

[9] (Quinn et al., 2007)

[10] (Christopher et al.2010)

interests are not considered by the ruling government organizations resulting in violence by the intra state elements against the state or its organizations. Conflicts are generally discussed in terms of its effects on the local civilian population. Civilians commonly suffer in terms of human rights violations, economic problems and mass displacement from the local area. Insecure living conditions, poverty, mass displacement and human suffering create their own cruel cycles often related with collective violence that may further tangle communities in the dynamics of the conflict. Due to public involvement the distinction between combatant and non-combatant groups involve in an internal conflict is very difficult. The rules or standards of military engagement by non-governmental groups are unclear that's why they cause more damage and create more problems[11]. Internal conflicts affect human lives in more than a single way. These conflicts caused destruction to human lives as well as their properties and infrastructure. Shelter, food and water scarcity during these civil wars were another horrible outcome of these armed conflicts. Guatemalan internal war was among the many conflicts that caused more then million people to migrate. The most intense period of civil war in Guatemalan was from 1981 to 1983. Children were the most affected due to that armed conflict and suffered a lot due to kidnapping, rapes, torture, and other violations of their rights[12].

These civil conflicts destroyed the health, lives, social set up and infrastructure. Congo was among some examples of countries heavily damaged due to these wars. According to a survey millions of people especially children died due to recent civil war in Congo. Africa hosting one of the poorest countries of the world face most of these armed conflicts i.e. one third of African counties are facing active civil wars since mid-1990s[13].

1.3 Internal Conflicts with in South Asia

The social, political and economic growth of South Asia has been seriously held up by internal or intra-state conflicts. This region is one of the most ethnically, culturally and linguistically diverse, as well as most populous, in the world. However, it is also host to deep-rooted ethnic

[11] (UNIDIR, 2003)

[12] (Rubiana et al., 2010)

[13] (Coghlan et al. 2007)

aggression, communal hostility and numerous wars, both inter- and intra-state. Some of these conflicts, such as those in Kashmir and Sri Lanka, are well documented, while many others receive minimal attention[14].

India is one of the largest and economically growing countries in the South Asia. Despite of Indian Inter-State conflicts with its neighboring countries, India is experiencing most of the internal conflicts in South Asia all across the Indian state. Indian state is involve in intra state conflicts in Kashmir with Muslim freedom fighters, Nagaland with Naga National Council (NNC), Punjab with Sikh movement of Khalistan, Assam with United Liberation Front of Assam (ULFA), Bodoland with ULFA, Tripura, Mizoram with The Mizo National Front (MNF), in Manipur and Meghalaya.

Pakistan is a very important country of south Asia because of its geographical and strategic significance in the area. Pakistan is also engage in number or internal (ethnic) conflicts, Baluchistan with Bloch Liberation Army, NWFP with Tehrek e Taliban Pakistan. Bangladesh is involved in conflicts in Chittagong Hill Tracks and in their western districts. Srilankan state is involved in armed conflict with Tamil Tigers for more than a decade. Bhutan is involved in conflict with the Nepali Migrants. Maldives is the only country in the south Asia which is free from for any internal or Intra State conflict[15].

1.4 War on Terror

On September 9th 2001 four commercial flights of United States of America were hijacked. Three of these hijacked planes were crashed with twin towers of USA leaving hundreds of people dead and injured[16]. After these terrorist attacks US announced its global war on terror[17].

[14] (PIPS, 2007.UNIDIR, 2003)

[15] (PIPS, 2007.UNIDIR, 2003)

[16] (Gail Makinen. 2002)

[17] (Amy Belasco. September 2, 2010)

Due to these terrorist attacks US invaded Iraq in March 2002 and Afghanistan[18]. The total cost of this war was $1,121 billion approved by US congress[19].

1.5 Pakistan as a US partner

Pakistan as an important country of South Asia was a front line state on War on Terror after the September 11 attacks on US. General Musharraf was the President of Pakistan at that time declared to fight along with US on this War on Terror. Pakistan joined this war on terror with US because of many reasons i.e. to avoid keep US away from India as many diplomats in Pakistan think that rejecting US offer on War on Terror might push India towards US. On Camp David meeting with his counterpart US President appreciated Pakistan's role in War on Terror and declared that top terrorist leaders were killed in Afghanistan. In July 2007 US intelligence agencies reported Pakistan FATA area as safe-haven for terrorist and stop some military assistance given to Pakistan from 2002 in order to push Pakistan for an aggressive attack on terrorist in FATA[20].

1.6 War With in Borders of Pakistan

Malakand Division situated in northwestern province of Pakistan (KPK) was once known for its beauty and always attract tourists, but over the last few deadly years it has witnessed the most horrific violence and killings due to militant extremism in the country. Public slaughter of numerous civilian and security personnel, destruction of judicial system, betting of prisoners and accused including women, destruction of schools, government offices, infrastructure, mass killings, Swat has seen it all since 2006.

[18] (Tellis. 2008)

[19] (Amy Belasco. September 2, 2010)

[20] (Tellis. 2008)

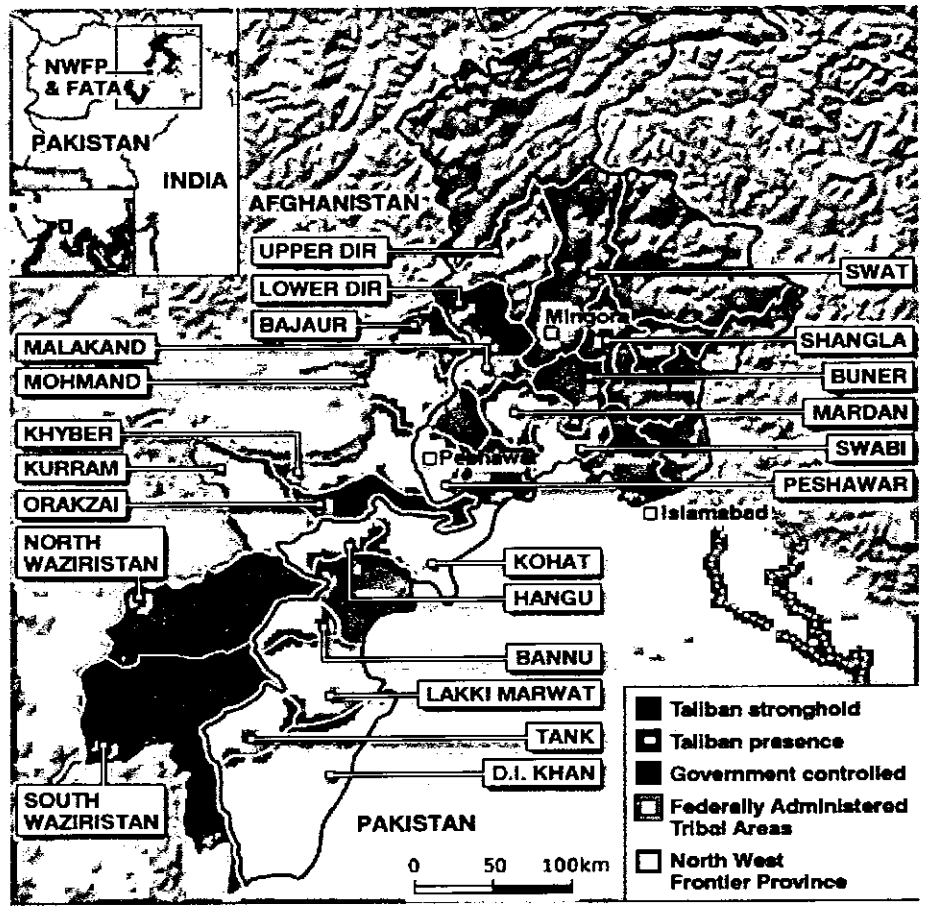

Figure 1. Map of KPK anf FATA

Malakand Division comprises seven districts. Malakand Protected Area, Swat, Shangla, Buner,Upper Dir, Lower Dir, and Chitral. Swat, Buner, Upper Dir and Lower Dir have been the districts worst hit by the militancy. The remote mountainous district of Chitral, which borders Afghanistan, was the only district to escape any militant activity or violence[21]. In 2006 Taliban killed local residents of Swat valley whom the Taliban said violated the, interpreted by them, Islamic rules. The government of Pakistan ordered the army for a decisive action against militants in Swat and adjoining areas. In an address to the nation, Prime Minister Syed Yousuf Raza Gilani said nefarious activities of militants had reached a stage where a decisive step against them had become inevitable.

[21] (HRCP, July 2010)

(ipripak, fact files,personally downloded)

21 Taliban commanders were identified as hardcore militants and announced cash rewards ranging from Rs 10 million to Rs 50 million through an advertisement published by the Khyber Pakhtunkhawa provincial government in leading newspapers of the country on June 9, 2009. Six militants on the list have so far been reportedly killed and two captured by security forces, while the remaining 13 are still at large[22]. Peace deal between the Government of Pakistan and Tehrek-e-Taliban Pakistan was broke down in April 2009 and security forces launched an offensive against the militants in the districts of Lower Dir and Buner in late April 2009 and in Swat in early May[23]. On May 8, 2009 Prime Minister of Pakistan Syed Yousuf Raza Gilani in his address to nation called out the army to take strict actions against terrorist elements in Malakand agency district Swat[24]. Pakistan Air Force fighter aircrafts bombed terrorist hideouts in Swat a day after Prime Minister's Address killing many terrorists[25].

[22] (HRCP, July 2010)

[23] (HRCP, July 2010)

[24] (*Dawn* (Islamabad), May 8, 2009)

[25] (*The Nation* (Islamabad), May 8, 2009)

1.7 Summary of Swat Operation

War on terror started in Swat valley in 2007, the first agreement arrived in February 2009. A Report compiled on Swat conflict in April 2009 and the total war period under report is of 17 months. Operation Raah-I-Haq was conducted by the security forces of Pakistan in May 2009. Due to this operation mass displacement of people occurred in May 2009. Estimated population displaced from Swat valley is 1.3 million. After the completion of operation displaced people returned to their homes on 13 July 2009[26].

[26] (Fazal M.Z (2009) Impact of War in Swat valley on farming sector. Aryana institute for regional research and advocacy (AIRRA) Islamabad.

1.8 Social and Environmental Impacts of War

Wars always bring deaths, fear, destruction, poverty and disintegration no matter what the cause may be. The partnership of Pakistan with global actors of war on terror and the consequent engagement of Pakistan's military and Para- military forces in the troubled regions with the militants had its consequences. Apart from heavy economical expenses on part of government and military, this military campaign also had unavoidable adverse environmental and socio-economic implications for the affected region[27].

The environmental impacts of armed conflicts can be implicit by examining the magnitude and duration of effects. The adverse impacts on ecosystems is specified by geographic locations, the use of individual weapon systems, the results of particular production processes and the cumulative combined effects of specified military campaigns. From this perspective, 4 activities can be seen as having prolonged and pervasive environmental impact with significant consequences for human populations: production and testing of nuclear weapons, aerial and naval bombardment of terrain, dispersal and persistence of land mines and buried ordnance, and use or storage of military toxins and waste[28]. Wars and military operations also generate toxic and hazardous waste which contaminate water and soil of the area[29].

Destruction of urban infrastructure during an armed conflict is always caused in a shape of destruction to urban infrastructure which comprises of environment for a major fraction of the world's human population. Air power was first introduced in World War II as a critical military technology, bombing from air on civilian settlement become increasingly prevalent and thousands of people died due to these air raids. On March 1945 aerial bombing on Tokyo caused death of 100 000 to 200 000 people. It is estimated that 500 000 to 800 000 people died due to bombings on 70 cities of Germany including Hamburg in 1943 and Dresden in 1945[30].

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[27] (Tellis. 2008)

[28] (Michael McCally, 2000)

[29] (Daycus, 1996).

[30] (Bull Peace Proposals 1986)

World War II produced very adverse environmental impacts and destruction of forests, farms, transport systems and irrigation networks. By the end of World War II there were almost 50 million refugees and displaced people[31]. After the end of World War II central Europe shows pictures of destruction, lunar landscapes scattered with enormous masses of rubble and bomb craters, deserted and stinking remains that had once been business centers and suburban areas. In Germany about a quarter of all houses were almost completely destroyed and many in Poland, Greece, Yugoslavia, and the European part of the Soviet Union. In the American zone of Germany 81 per cent of all houses had been destroyed or damaged. In the German-occupied parts of the Soviet Union the homes of six million families had been destroyed, leaving about 25 million people without shelter[32]. About 9 million people were became down-and-out, 66 cities had experienced major harm with about 40 % of their area completely or heavily destroyed. . Because of huge food shortages and the failure of the 1945 rice harvest, hunger and starvation distress the majority of the civilian population and thousands died from causes related to starvation[33]. In the 15 years of the war in Southeast Asia, the US bombardment of Vietnam, Laos and Cambodia forced about 17 million people to become refugees[34]. In the Gulf War, the collision forces destroyed the urban support systems of major cities in Iraq[35].

Destruction of environment as tactic of war against an enemy and opposing terror in the local population has been practiced through out the history of mankind. Destruction of dams, dikes, scorched soil, and forests during World War II have been well documented[36]. Destruction of environment as a tactic during a war is evident from the use of defoliants during the war in Southeast Asia. US army sprayed 3640 km^2 of herbicides on agricultural land of Vietnam from

[31] (Laquer, 1984. p. 25)

[32] (Laquer, 1984. p. 15-16)

[33] (Dower JW, 1999. p. 33-120)

[34] (Westing AH, 1980)

[35] (Renner MG, 1991.p.27-33)

[36] (Westing, 1990. p. 6)

1965 to 1971, a total estimate of 55 million kg. The justification put forward by the authorities is to spoil the food sources of enemy and their mean of cover in vegetation[37].

1.9 Explosives and their Impacts

Ying et al define explosives as chemical compounds having fast rate of decomposition to different components and during this process of conversion to different derivatives releasing a huge amount of gaseous products and heat energy[38].

Explosives are used mainly for military purposes, industries, mining and sometimes for agricultural purposes.[39]. On basis of burning explosives were divided into low explosives and high explosives. Low explosives are those having low rate to burning and the highly explosives having higher rate of burning. Low explosives include propellants used in artillery shells to project the main explosives to the target[40]. Propellants are defined as something, such as an explosive charge or a rocket fuel, which propels or provides thrust. These propellants used in artillery shells were manufactured by nitration of cellulose with the mixture of nitric acid and sulphuric acid.

$C_6H_7O_6(OH)_3 + 3HNO_3 \rightarrow C_6H_7O_2(ONO_2)_3 + H_2O$

Propellants are of three types:

1) Nitrocellulose → single base (source of energy)

2) Nitrocellulose + Nitroglycerin → Double base

3) Nitrocellulose + Nitroglycerin + picrite → three base

[37] (Westing, 1980) (publisher)

[38] (Ying *et al.*, 1995) (analyst/ scientist)

[39] (Gaurav et al., 2007)(war analyst)

[40] (Suman sing, 2007) (writer/ defense analyst)

These propellants then convert into CO_2, N_2, CO and water vapors. (POF ref.5636-2-POFIT, 2004)

High level explosives are further divided into two sub groups of explosives i.e. primary and secondary groups. Primary explosive are initiative explosives that ignites the secondary explosive which basically includes the Trinitrotoluene TNT and other nitromines that causes the main impact on hitting the target[41].

Despite the destruction caused by an artillery shell, detonation of the secondary explosives tends to release toxic chemical compounds that mix with the soil of the impact area and in turn increase its pollution level. There are no effective management strategies for explosives they are mostly dumped in the sea, burned or detonated in distant areas. Sooner or later these explosives travel down from contamination site by leaching into the soil. Contamination caused by these explosives results in serious health and environmental problems[42].

Test fire ranges of military bases and other defense organizations involve in manufacturing of heavy artillery ammunition contain toxic compounds in soil and raise environmental concerns all over the world[43].

Contaminations caused by the explosives add nitroaromatic and nitramine in the soil and in ground water through run off and leaching down[44]. These explosives have a carcinogenic and toxic effect on human body that includes headache, liver injuries that in turn affect the blood circulatory system of the body causing anemia and damage to various organs[45].

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[41] (Suman sing, 2007)

[42] (Gaurav *et al.*, 2007)

[43] (Ying *et al.*, 1995)

[44] (Lipnick and Karn. 2000)

[45] (Gaurav et al., 2007)

Ying et al conducted a study in Chine and unrevealed that explosives cause hepatomegalia and cataract which can be fatal. Both infections were clear in the workers and nearby residents of the mine that used the explosives for the mining purposes[46].

During the World War I thousand tons of explosives were manufactures by German army and the most prominent was Trinitrotoluene (TNT) and its products [47] . In all the major wars of the world 2,4,6-Trinitrotoluene (TNT) was the mostly used explosive in the battle field and hence tend to add major contaminants in the soil. Trinitrotoluene and its derivatives are toxic to both marine and land inhabitants[48].

1.9.1Trinitrotoluene (TNT)

2,4,6-Trinitrotoluene commonly known as TNT is a basic component of ammunition like military shells, bombs, and grenades and only manufactured in authorized military facilities. TNT is a yellowish, odorless solid that does not occur naturally in earth crust. TNT is also known as symtrinitrotoluene, TNT, and 1 -methyl-2, 4, 6-trinitrobenzene, a compound made by combining toluene with a mixture of nitric acid and sulfuric acid .

2,4,6-Trinitrotoluene enters the environment in many ways and can cause a serious damage to environment and to public health. It can enter the environment in waste waters from TNT manufacturing facilities, blasting of bombs, grenades, missiles and from recycling of explosives. TNT can easily enter the ground water channels through surface water can also be easily degraded into other compounds by sun light. Organic matter present in the water and sediments decompose TNT slowly. Also it has a tendency to accumulate in the plant and fish bodies and in turn enter into food chain[49].

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[46] (Ying *et al.*,1995)

[47] (Bausinger and Preuß,2005; Preub,2006)

[48] (Reddy et al., 1997; Berthe et al., 1998)

[49] (US.PHS, p.2)

Local population near a contaminated soil or impact zones of war may also be exposed to TNT by eating vegetables, fruits grown on contaminated soil. Exposure to children may also be due to ingestion of contaminated soil or breathing contaminated air[50]. Due to seriousness of health effects caused by exposure to relatively low levels of 2,4,6-trinitrotoluene in the workplace, the threshold limit value (TLV) was lowered to 0.5 mg/m3[51]. TNT can cause disorders of the blood, such as anemia, and liver cancer. Exposure to skin results in irritation and inching (p.4). Numerous cases of anemia and fetal aplastic anemia were reported among the workers using TNT in production of explosives during World I in England[52]. Toxic hepatitis has been the chief symptom of 2,4,6-trinitrotoluene toxicity in humans[53].

Production of 2,4,6-trinitrotoluene increased during World War and many cases of fetal hepatitis were reported. In World War II due to introduction of industrial hygiene techniques dramatically reduction in the cases of fetal hepatitis were seen in the workers involve in the manufacturing of explosives using 2,4,6-trinitrotoluene[54].

No information was found on the transformation of 2,4,6-trinitrotoluene in the atmosphere. However,2,4,6-trinitrotoluene released to the atmosphere should undergo direct photolysis, as it does in surface water. Estimates of the photolytic half-life of the compound in air range from 3.7 to 11.3 hours; these estimates are based on the rate of photolysis of the compound in distilled water. Estimates regarding the photo-oxidation half-life of the TNT in the atmosphere range from 18.4 to 184 days. These estimates are based on the estimated rate constant for reaction with hydroxyl radicals in the atmosphere[55]. The estimated half-life of 2,4,6-trinitrotoluene in surface waters is 0.16-1.28 hours, based on the rate of photolysis and photo-oxidation in sunlit natural waters[56]. The estimated half-life of 2,4,6-trinitrotoluene in soils ranges from 1 to 6 months. This

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[50] (US.PHS, p.3)

[51] (ACGIH 1993)

[52] (Hathaway 1985)

[53] (Army 1978a)

[54] (Army 1978a)

[55] (Howard et al. 1991)

[56] (Howard et al. 1991)

estimate was made on the basis of the estimated un-acclimated aqueous aerobic biodegradation half-life[57].

1.10 Problem Statement

Historians have highlighted modern technology in reshaping the impacts of warfare, particularly its impact on military personals and rest of civilian population. The increasingly destructive capacity of modern technology changes the way of traditional warfare and increase the level of destruction caused to the socioeconomics and infrastructure of societies affected. Now a day's war in terms of scope and impacts are becoming intra-state and involving more civilian causalities. Matta has always been strong holds of militants from start of conflict and has a great importance from military's point of view. In 2009 Government of KPK has conducted a survey of the Swat area but the main shortcoming they mentioned in this study was that they cannot conduct survey in Matta due to security threats. The proposed study will not only generate the data on the magnitude of the military operation impact on the soil, water and social life of common man but will also be useful for studying and predicting the impacts of military operation in the different regions of world with similar socio-economic, topographical and environmental conditions.

1.11 Objectives

The main objective of the study is to assess the nature, magnitude and extent of the environmental and social impacts of the conflict in swat valley. This will be achieved by concentrating on the following specific objectives:

- Assessment of social impacts of operation and damage done in Swat .
- Analysis of water and soil quality after the operation as well as reference zones of these resources where there had been no military operation.

[57] (Howard et al. 1991) P.H., Boethling, R. S. & Jarvis, W.F. (1991) Handbook of environmental degradation rates.

Chapter 2

Literature Review

The effects of the civil wars generally extend beyond the borders of the conflicted states. Javier and Baez (2007) studied the socioeconomic effects of the genocide of Rwanda and Burundi on Kegara -a north western state of Tanzania. Due to the civil conflicts many people died and others migrated to the neighboring states. In 1994 Kegera was flooded with more than 500,000 refugees from the two states affected by the genocide. This study focused on the short term and long term effects of such a huge mass flow of the refugees especially on the children. Due to some topographical barriers and unequal distribution of the refugee camps some areas were overcrowded, thus producing the negative impacts of the local inhabitants. The study shows the adverse impacts produced after 1.5 years of the genocide in terms of worsening in children apomatriculations, 15 to 20 percent increase in the rate of infectious diseases and 7 percent increase in less than 5 mortality rate. After ten years of the population shock the children who survived had the reduced heights in early adulthood. The literacy rate was also less by 7 percent. The data was collected through survey of the local people in order to study the short term effects .the study of long term impacts was carried by using the data of Kagera health and development survey. During the study several parameters like the geography of the region and distance from the border of the border of Rwanda were taken in consideration as an alternative strategy for identification of refugee intensity. The study was carried out to show the indirect effects of civil wars on the health and economy of the children of the refugee- hosting countries and states.

Husain (1998) investigated the impacts of Gulf War (during & after the war) on the terrestrial & atmospheric environment as a result of Kuwaiti oil fires. This research study also focused on investigating the impacts of different pollutants on human health & marine environment. Severe malfunctioning of lungs, Asthma, distasteful odor, increased airway resistance, chronic cough & mucus secretion resulted due to the inhalation of the pollutants released from the Kuwaiti oil fires. Air quality based on the gaseous & particulate matter concentrations at various location of Kuwait & Saudi Arabia during & after the Gulf War were obtained & compared. Results showed

that the concentration of gaseous & particulate matter was much higher during the oil fires in 1991 than after the Gulf war in 1993.

Hendrex & Glaser (2007) investigated trends, triggers, climate & climate change due to the civil conflict in Sub Saharan Africa. Climate change due to the conflict focused on long term trends in temperature and precipitation that define ecosystems and their impacts on the renewable resources. Because these changes occurred over long period of time that may not had captured the factors that trigger conflict. The impact of both long term trends in climate and short term climatic triggers on civil conflict in Sub-Saharan Africa were estimated. Findings showed that both operations had a significant impact. Results revealed that climates were more suitable for Eurasian agriculture and were associated with a decreased likelihood of conflict, while on the other hand freshwater resources per capita were positively associated with the likelihood of conflict. Moreover, results pointed out those positive changes in rainfall were associated with a decreased likelihood of conflict in the following year. The outlook of the future was also assessed by analyzing simulated changes in precipitation means and variability over the period 2000-2099. Few statistically significant and positive trends in the measure of annual variability found suggested that it was unlikely to be affected by expected changes in climate.

Vazquez *et al, (2000)* focused on investigating the long term effects of 1991 Gulf War on the Hydrocarbon levels in Clams at the selected areas of the Saudi Arabian Gulf Coastline. For this purpose the hydrocarbon levels for the period from 1981 to 1990 in the clam at the different selected locations along the Gulf coastline of the Saudi Arabia were compared to those from the war & the post war periods. Results of the study revealed that five sites i.e. Safaniya Bay, Tanajib Bay, Manifa Bay, Ras Az Zawr and Abu Ali North out of nine selected sites of the study area i.e. the Gulf coastline of the Saudi Arabia were affected by the war oil spill. Normal hydrocarbons, aromatic hydrocarbons and crude oil biomarkers were found in samples from all the sites. N-alkane had no significant impacts. For the 1991-93 periods there was a small decrease in the average n-alkanes values at Safaniya and a larger one at Ras Az Zawr suggesting a reduction in the hydrocarbon input at these sites. However dibenzothiophenes and phenanthrenes increased significantly in the clam during the war period. These values returned to

pre-war levels after a short period of time i.e. within two years. The data of the affected sites where compared with that of the four unaffected sites of the study areas.

Patrick et al (2008) conducted a study on physiological effects of Israel- Hezbollah War on Jews and Arab residents of Israel. Israel is facing many rocket attacks across the border from Hezbollah in past many years. These rocket attacks mainly affect the southern part of Israel and as a result many civilian populations are evacuated from the area. These attacks on the Israel cause many social impacts on the civilian population and also affect their mental health due to stress. To stop these attacks war was fought between Israel and Hezbollah in 2006. This respected study by Patrick et al is based on the assessment of post-traumatic stress disorder (PTSD) and to assess potential risk and flexibility factors in both the civilian population i.e. of Israeli and Arab populations from July 12 to August 14, 2006. During this period lasting from July 12 to August 14, 2006 approximately 4000 rockets fell in the areas of Northern Israel. According to the Israeli Ministry of Foreign Affairs, 2006 more than 300,000 Israelis evacuated Northern Israel and more than 1,000,000 lived in air-raid shelters. A telephone survey was conducted on the bases of random sampling to assess the mental trauma due to this war. Sampling was done on the basis of random selection from the lists based on the Israeli telephone company (Bezeq) database of landline telephone numbers. The data base contains approximately 98% of the telephone numbers in Israel. The people selected for the telephonic interview was selected on the basis of socioeconomic and geographical variables and comprising of sample adults Israelis. 3788 house hold numbers were called off which about 24.5% were irrelevant. The final useable response rate from useable connections was 52.4 %. Two-tailed Pearson chi-square tests, independent sample t-tests were used to analyze the data. Variables with P-values < 0.1 were included. The results showed that 67.1% of the individuals selected for the interviews experience at least on type of event.

Ghobarah *et al* (2004) studied the health effects of civil wars on the civilians of the conflicting states. The civil wars produce immediate effects in terms of killings, destruction of property. They also disrupt the economic activity and reduce the medical and health facilities. In addition to this the refugee migration put the people in crowded conditions, where they face the problems of food and water. The refugees also act as the vectors of diseases. Due to the poor health

conditions diseases breakout which affect the local residents as well as the refugees. They examined the long term effects of cross national analysis of the post war consequences based on world health organization data on death, disease and disability rate. Age and gender of the affected people was also taken into consideration. Due to the disrupted health care facilities, over crowding of the refugees in the camps with low sanitation becomes the cause of spreading of various infectious diseases like acute respiratory diseases, dihorea, and measles, malnutrition e.t.c. the non migrants suffer even more. In this study the impacts of civil wars were studied from a period of 1991 to 1997. The study shows the long term effects of the diseases take 5 to 10 years to appear. So they estimated the rates of death and diseases to be doubled by 1999.aon studying several diseases that occurred in the war affected areas the women and children were found to be the most affected victims of the diseases.

Baomar and Mohamed (2000) examined the outbreak of malaria in malaria free region Dhofar (Oman) in 1998. For this purpose in 1991 a National malaria eradication program was established in which Oman was divided into three areas i.e malaria eradicated areas, malaria eradication areas & malaria free areas & the Dhofar was among the malaria free area. Malaria's outbreak in Dhofar region in the last six years was confirmed by reviewing notification records in the Directorate of Health. All possible cases were identified by both active & passive case finding methods. Three hypotheses were given in order to explain the mechanism of the outbreak. Frist & the most probable was the transmission by active vectors in the region. Vectors A. sergenti & A. stephensi were found where patients reside which were of local significance. Thousands of Somalis left their country after the civil war in Somalia & migrated to several neighboring countries including Yemen. Although their number is unknown but several hundred migrants entered illegally in Dhofar providing the sufficient number of gametocyte carrier for local anopheles mosquitoes to feed on.

Miller and Rasmussen (2009) examined the conflict between advocates of trauma focused verses psychosocial approach in understanding & addressing the mental health needs of communities affected by armed conflict. These two approaches are fundamentally different regarding the factors that influence the most the mental health in conflict & post conflict settings by emphasizing the role played by the daily stresses (stressful social & material conditions) in mediating the direct war exposure & mental health. The critical factor of trauma focused

advocates was the direct exposure to the violence which gave no importance to the contribution of stressful social & material conditions. For psychosocial advocates in contrast focused on the stressful social & material conditions (daily stresses) caused by armed conflict. A model was proposed on the basis of the data drawn by the recent studies in which daily stressors partially mediated the impacts of direct war exposure on the mental health. According to that model an integrative approach to intervention was proposed in which daily stressors were first addressed and for individuals a specialized intervention was proposed whose distresses did not abate with the normalization of their environment through the reduction of daily stressors.

Edward et al (2010) assessed the impacts of intensive bombing on the poverty persistence in Vietnam. Vietnam War experienced one of the most intense bombing and loss of human lives in war history. US forces conducted very intense bombing in many regions of the Vietnam during this war. Vietnam War experienced three times more intense bombing (by weight) as compare to World War II and fifteen times more (by tonnage) as in Korean War. Destruction due to wars is not hidden and neither are their future outcomes on economy of the countries affected. Main impact of armed conflicts is destruction of physical capital and human capital .Post war assessment models predict that as the economy of the country comes back to its steady flow, there are no long term effects of war. War may also affect the quality of technologies, institutes and social outcomes. It is often said that advancement in military technologies and hardware lead to increase in technological progress and in turn balance the destruction done due to armed conflicts. Economics sector of a country faces the major long term effects of the war. Comparative study was conducted with respected heavily bombed areas and demilitarized areas of the country. Different statistical methods were used to analyze the data. The magnitude of bombing is estimated by considering non bombing zone and average bombing zone of 32.3 bombs, missiles, and rockets per Km^2. The result after the calculations is 0.008 which is very low. It is concluded that even one the most heavily bombing in the history of human armed conflicts have little impact on poverty rates on the country. This is because most of the bombing took place in the rural areas of South Vietnam were little infrastructure is intact to destroy. Another factor is the fast reconstruction effort of Vietnam Government after the war using the mass mobilization of labor in the reconstruction process.

Liu *et.al,* (1995) 2,4,6 Trinitrotoluene(TNT) which was used as the major explosive during world war 1 is a toxic compound which can cause liver injuries and the diseases of heamopoietic system. Two studies were carried out in a TNT manufacturing plant. They used TNT hemoglobin adduct used as biomarker in order to study the dose-adduct and adduct-response relationships. In the first study 37 workers from each working site were exposed to TNT and the amount TNT inhaled and skin contamination of the workers with TNT was calculated. Two methods HLC-UV and CI-ELISA were used for measuring the TNT adduct. Good correlations were found between the two methods. . On the other hand in order to study the adduct -response relationship only those workers were selected who were working for at least in the same working conditions for minimum one year as TNT-induced cataracts are progressive and eventually form irreversible or persistent changes in lens. The cataract was chosen as the toxic effect of the TNT exposure. The results shown that, the TNT levels below 140ng/g Hb are not toxic even after the exposure up to 20 years. This study shows that the cataract and lens damage increase with the increase of TNT-Hb level.

William et al (1996) conducted a research work on In situ detection of trinitrotoluene and other nitrated explosives in soils. They developed a method for in situ detection of explosives in the soil based on the observation that thermal decomposition of different explosives like TNT, RDX, HMX and many others over heated noble metal surfaces produces distinctive products that can be identified by amperometric gas sensors. Due to low vapor pressure gas sensors are unable to directly detect the Trinitrotoluene (TNT). So a method was developed to either increase the vapor pressure of TNT or convert it to known gaseous compound for detection. TNT was used as prime explosive for detection because it is most common explosive and soil contaminant. The in situ detection of explosives in soil by electro chemical method gives significant results by thermal catalysis of TNT in soil. A penetrometer probe was also made for field detection and efficiently used in many explosive facilities.

Corey et al (2001) conducted a study in southeastern Idaho to assess the contamination in soil due to explosives. TNT was the only contaminant used to assess the soil quality. The studied site was selected having area 30 into 60 feet and then further divided into 100 sub sites having area of 3 to 6 feet's. Then from these selected sites 7 to 10 grams of soil samples were collected. At least 6 samples were collected from each site and then homogenized. The sample was stored at

4^{O}Cfor analysis in laboratory and method 8330 was used for analysis. The high performance liquid chromatography (HPLC) was used for the detection of the TNT using water and methanol mobile phase with column 18 at 250nm. All the results revealed that the soil is contaminated with the TNT above the threshold value. TNT concentration was found to be up to 44 ppm. Difference in sampling technique shows no effect on the concentration of the TNT contamination in the soil but the difference in treatment show different results.

Halasz *et al*, (2002) conducted a study on the contamination RDX, HMX and TNT caused by various military activities in Wainwrights, Canada. In this study different extraction methods were used for the parameters super critical fluid extraction with carbon dioxide (SC-CO2), acetonitrile [US Environmental Protection Agency (EPA) Method 8330] and solid-phase micro extraction (SPME), to extract explosives and their degradation products from different samples for succeeding analysis by LC–MS, CE–UV and GC–MS. They collected four different types of samples, from surface and subsurface soils, ground water and plant tissue samples for the determination of the contamination. For preparing standard TNT,RDX, HMX were obtained from the Defense Research Establishment Valcartier Canada. The contaminated soil was obtained from the firing range area and manufacturing plants. Soil samples were collected from 0 to 1.5 m depth while ground water from a well near to the soil sample area having up to 9m depth. The result obtained by comparing sample by SPME and HPLC showed that the SPME shows less detection limits then by HPLC. Using standard calibration procedures and an *S/N* ratio of 3 we found the detection limits for TNT, 2-ADNT and 4-ADNT were 9, 20 and 10 mg/L, for SPME and 20, 50 and 50 mg/L, for HPLC respectively and the concentration of the contamination also decreased from surface towards depth. The quantity of TNT, 2-ADNT and 4-ADNT in surface soil sample were very high, which considerably reduced to trace amounts in sub surface and up to 1.5 m depth and in groundwater sample. It was concluded from the detection that contamination was present in the selected site as well as ground water and had also accumulated in the plants.

Thomas et al, (2003) worked on bioremediation of soil contaminated with explosives especially 2, 4,6-trinitrotoluene (TNT). Over the last 100 years many ammunition manufacturing facilities and processing of explosives led to the dumping of explosive waste in the environment. Growing concern about the environmental and health problems created by the explosives lead to

the studies related to the impacts and by products of the explosives most widely used in the world. Due to public health concerns contaminated soil must be treated with some economical process such as biological treatment of organic compounds. TNT is the most widely used explosive in the world and its by-products like water-soluble dinitrotoluenesulfonic acids can easily leach down from soil into the water table. The nitramine explosives like hexahydro-1,3,5-trinitro-1,3,5-triazine(RDX) and High Melting Explosive (HMX) are more vulnerable to photolysis then TNT. RDX has a low affinity with the soil so is more mobile than TNT and leach down more rapidly to ground water. Composting, phyto-remediation and bioslurry are three treatment processes used for the treatment of soil contamination with soil..

Felt *et al.*,(2008) worked on the detection and concentration of explosives contamination in soil by using hplc with UV in the United States. The most of the contaminated soil is found in test range and firing range sites of government security organization. The contamination was in the form of RDX, TNT and their derivatives. In USEPA two method are widely used for the determination of explosives one is 8330 and second is 8095 but the most pronounced and accurate method is 8330.The 8330 method is further modified to 8330 B which is similar to 8330 but used for low concentration contamination and acceptable all over the world in which HPLC with UV and column C 18 is used. Standards were prepared with ratio of 2mg/L of explosives and 2ml of each solution with 300 g homogenized soil and extraction of the soil was taken according to USEPA. Two concentration technique were used in first one solid phase extraction cartridge were used and in second one low level salting out method were used. The short comes of traditional method used for the analysis of explosives were considerably decreased by using 8330 B method and also the standard deviation obtained from this method were lower as compared to traditional method used. The problems caused by explosives based contaminants can be detected by using this concentrative extraction procedure for low level contaminations.

Chapter 3

Material and Methods

3.1 Water Sampling

Water samples were collected from six different villages in the Mata district of Swat Pakistan. Villages named as Kurray, Behi, Shawar, Deth pani, Shokh dara, Aghal were selected on the basis of access in the area due to security situation of the Mata district which was a former strong hold of the Tehrik-e-Taliban Pakistan. Three different streams/water channels were selected for water sampling near the impact zone of the bombing experienced by the selected villages. Water samples were collected at three different points downstream from each selected stream/water channel. Two samples were collected from same point with the time difference of 30 minutes. Total of six water samples were collected from a stream two from each point and distance between the three points was 400 meters. Same sampling technique was used for the other two stream/water channels. Ten ground water samples were selected from the homes near the impact zones in the selected villages. Two field visits were conducted for the water sampling using the same sampling technique in months of Feb and May 2011.

Water samples were collected in the sampling bottles properly labeled and rinsed before the sampling. Cap of sampling bottle was removed carefully evading contamination by hands or dust particulates in the air by gripping on outside surface with inside surface facing down. Samples were collected from flowing water as recommended by US EPA and sampling bottle was carefully placed in current facing upstream and filled. Samples were immediately sealed and stores in the ice at $4^{O}C$[58].

[58] (US EPA) Environmental protection agency. Of United States.

3.2 Water Analysis

3.2.1Conductivity

Conductivity of ground and surface water samples was measured by using OAKION conductivity meter 10 series by EUTECH in the laboratory by using standard procedure and method.

3.2.2 pH

pH of the ground and surface samples were determined by the JENWAY 3505 pH meter in the laboratory by using standard procedure and method.

3.2.3 COD

Chemical oxygen demand (COD) was determined in the laboratory. First digester solution was prepared by drying 1.02 g potassium dichromate at 150 C for two hours. Then dry potassium dichromate was added with 33.3 g HgSO4 and some distilled water in a volumatriculation flask. Then 167 ml sulphuric acid was added in the same volumatriculation flask and make solution up to 1000 ml with distal water. The average life time of digester solution is 3 to 4 months.

Then sulphuric acid regent was prepared by adding 1.1 g AgSO4 and 1 kg H2SO4 in volumatriculation flask. Finally COD vials were prepared by adding 1.5ml digestion solution, and then 3.5 ml H2SO4 regent was added. In the end 2.5 ml of water sample was added along the wall of the voile. Prepared COD vials were put in digester for 2 hours and COD values were measured in spectrophotometer at 420 nm.

3.2.4 TNT determination

TNT was determined by using HPLC device.20 ml of sample was filtered from PTFE 0.45um filter. The mobile phase was water and methanol at 50:50 and flow rate was 1 ml/min for 20 minutes injection volume of sample was 10µl and detection was on 254nm with UV detector. The Perkin Elmer HPLC (with pump) series 200, C18 column; 25cmx4.6cm, 5um with UV detector was used for the detection of TNT. The results obtained were compared with the results of standard.

3.3 Soil Sampling

Soil samples were collected from six different villages in the Mata district of Swat Pakistan. Villages named as Kurray, Behi, Shawar, Deth pani, Shokh dara, Aghal were selected on the

basis of access in the area due to security situation of the Mata district which was a former strong hold of the Tehrik-e-Taliban Pakistan. Six different impact points of bombing were selected which were still undisturbed by the local residence. A reference zone was selected which did not experience any bombing during or after the conflict as identified by the local residents of the area. Composite soil samples were collected one from surface and one from sub-surface of 1.5 meter depth[59]. This sampling technique was used for soil sampling at three more points having a gap of 5 meters downstream from impact zone. Total of 72 soil samples were collected in each of two field visits using the same sampling technique in months of Feb and May 2011.

Soil samples were collected in the plastic bags which were properly labeled and sealed after the sampling. Samples were kept in ice at 4 C and transferred to laboratory for analysis.

3.4 Soil Analysis:

3.4.1 pH

pH of soil was determined by adding five gram of soil in 25ml of deionized water in 50 ml flask at ratio of 1:5. Then the mixture was shaken by orbital shaking incubator WY-100 OTIC_ IVYEN system for one hour at 250 rpm. pH was determined by using JENWAY 3505 pH meter in the laboratory by using standard procedure and method.

3.4.2 Organic Carbon Determination

Organic carbon in the soil was determined by dry combustion method[60]. 20 gram of properly grounded soil was taken in the china dish and put in furnace at 100 °C for one hour for removal of moisture. Then the soil was weighted and again put in furnace at 550 °C for 2 hours and then organic matter was determined by weight difference of soil sample before and after combustion.

3.4.3 TNT Determination

For determination of 2-4-6 trinitrotoluene (TNT) soil samples were properly grinned and sieved through 2mm sieve. 5 gram of soil sample was mix with 50 ml of acetronitrile in a 100 ml conical flask at a ratio of 1:10. Each sample was allowed to soak for few mints and then put in

[59] (Halasz *et al.*, 2002) *Chomatograph*. 963. 411-418.

[60] (McCauley et al, 2009)

mechanical shaker for 30 mints [61] at 250 rpm and then allowed to stand for 30mins and filtered from 0.45um PTFE filter. The filtrate obtained was used as HPLC sample. The Perkin Elmer HPLC (with pump) series 200, C18 column; 25cmx4.6cm, 5um with UV detector was used for the detection of TNT. The mobile phase was water and methanol at 50:50 [62] and flow rate was 1 ml/min for 20 minutes injection volume of sample was10ul and detection was on 254nm.The results obtained were compared with the results of standard.

3.5 Questioner Sampling

Total of 270 questioners were filled on the basis of 94% confidence level and 6 % error from the six selected villages named as namely Kurray, Behi, Shawar, Deth pani, Shokh dara, Aghal. The total adult population of the area was 114495 according to the district census report 1998. Unstructured random sampling was used for the questioner survey in the impacted area. Respondents of age 18 years and older were selected randomly[63].

S.No	Villages	No. Of Respondents
1	Shawar	30
2	Behi	35
3	Deth pani	65
4	Shokh dara	32
5	Kurray	70
6	Aghal	38
	Total	270

Table 1: Distribution of respondents in villages

3.6 Additional Data

Additional data of injuries and death rates due to the military operation is collected from the Casualty Unit of Saidu Sharif Hospital Mingora city district Swat. Damage reports related to educational institutes in the area was collected from the EDO office Mingora city district Swat.

[61] (Abdelkader et al., 1999)

[62] (ref: EPA method 8330)

[63] (Patrick et al, 2006)

Chapter 4

Results and Discussion

Malakand Division situated in k.p.k was once known for its beauty and always attract tourists, but over the last few deadly years it has witnessed the most horrific violence and killings due to militant extremism in the country. Numerous civilian and security personnel being publicly slaughtered, destruction of judicial system, beating of prisoners and accused including women, destruction of schools, government offices, infrastructure, mass killings, Swat has seen it all since 2006. Mata Tehsil remains a strong hold of Taliban in Swat District for many years. In order to obtain an overall view of the Social and environmental impacts of conflict in Mata (Swat), a structured questionnaire was used to randomly chose households in the six affected villages in the area on basis of access. The questionnaire was used to collect information on: demographic, human .physical, environmental and financial impacts of conflict in the area.

4.1 Demographic data of affected villages

4.1.1 Age

Age play important role in the formation of attitude of individual in social set up. It is an important variable that affect the thinking and attitude pattern of individual toward development. First of all, the age profile of the respondents was studied by gathering information about the age of the respondents in residential areas in impacted localities of Mata Tehsil. Over all 270 Questioners were filled on basis of random sampling in all the six selected villages. All the randomly selected respondents are male due to the fact that the area under study has strong cultural values and Islamic traditions hence women are not allowed to communicate with strangers.

Age level of affected villages in Mata Swat

Although the inter-location difference on household age was statistically significant, implying that the age of the respondents of selected villages in Mata Tehsil is not similar. About 29.6% of

all the respondents are in the age group of 18-28 years, 37.8% of respondents are of age group from 29-39 years, 22.6 % belongs to age group of 40-50 years and only a small percent of respondents in all the selected villages are above 50 years of age (table 1). Its is clear from the table 1 that most of the respondents belong to age group of 29-39 years i.e 37.8%. This implies that the respondents belong to average level of physical and mental active groups (figure 2).

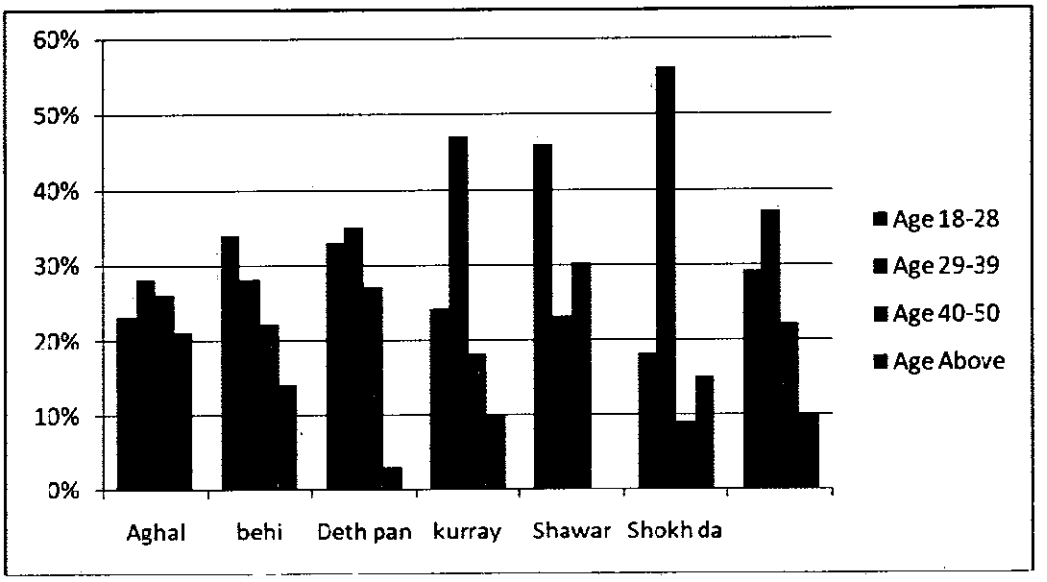

Figure 2: Age groups in affected villages

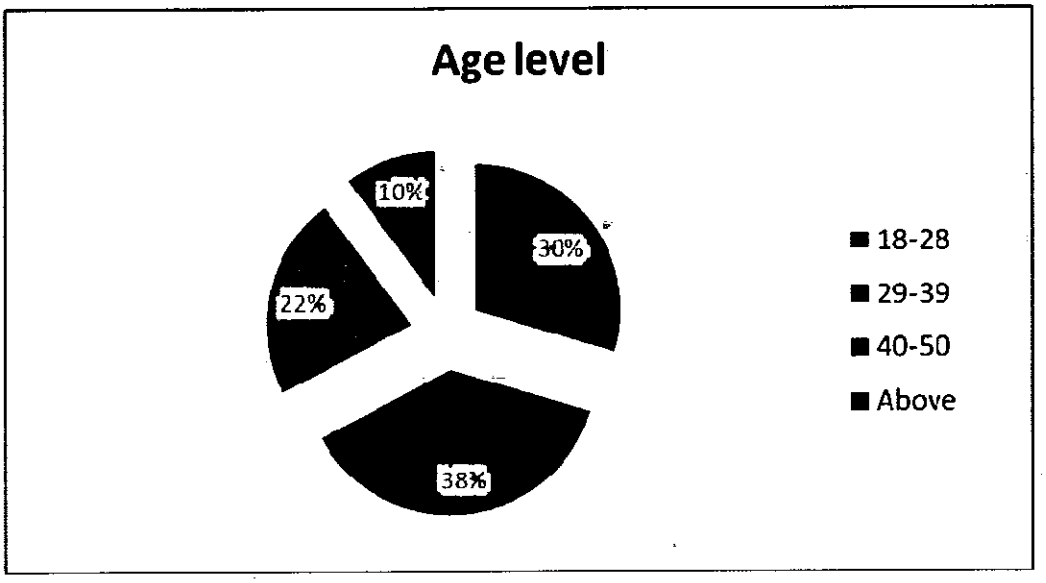

Figure 3: Overall % age of age levels

4.1.2 Education level

The inter-location difference on respondent's education level was statistically significant, implying that the age of the respondents of selected villages in Mata Tehsil is not similar (figure 3) About 44% of the total respondents are illiterate because the area selected is a rural area of Swat District mostly dependent on the agriculture[64]. High education respondent was found in Kurray and Deth pan.

On the other hand poor situation respondent education was found in Aghal and Behi where no respondent was found above matriculation Most of the respondents among the literate belongs to matriculation level of education and least belongs to the master level i.e. of 2.6% (figure 3). This chart clearly shows the poor education level of all the selected villages most evidently because of the backwards of the area and lack of educational institute in this conflicted area. Village Kurray has most of the literate respondents and village Shawar has most of the illiterate respondents among the affected villages in Mata Tehsil (figure 3).

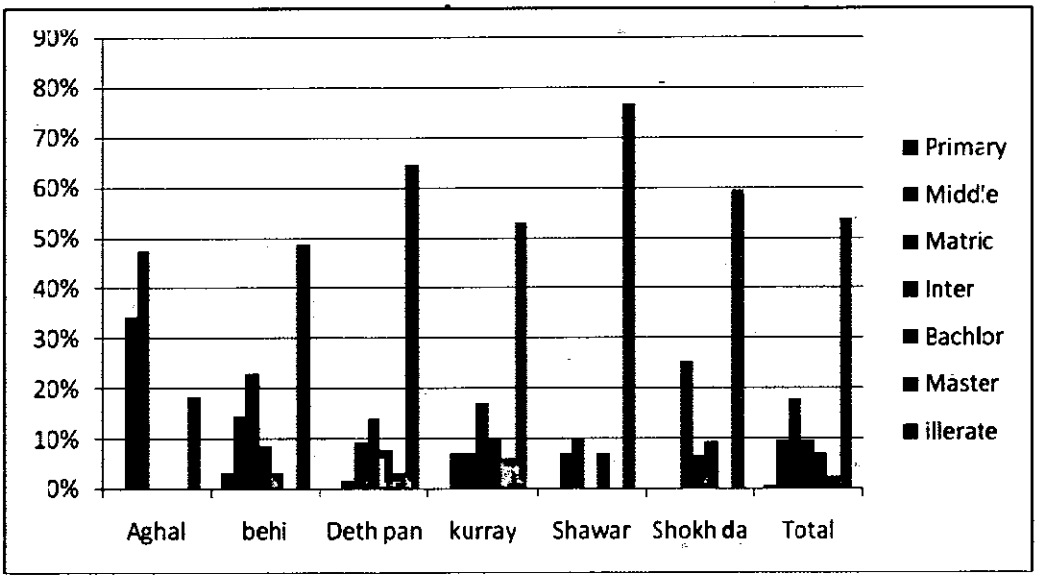

Figure 3: Level of education on village level

46% of all the respondents in the selected villages were literate and 54% of all the respondents were illiterate showing the poor quality of education level and lack of tend towards the education in the local residents (figure 4).

[64] (IPRI fact file, 2009)

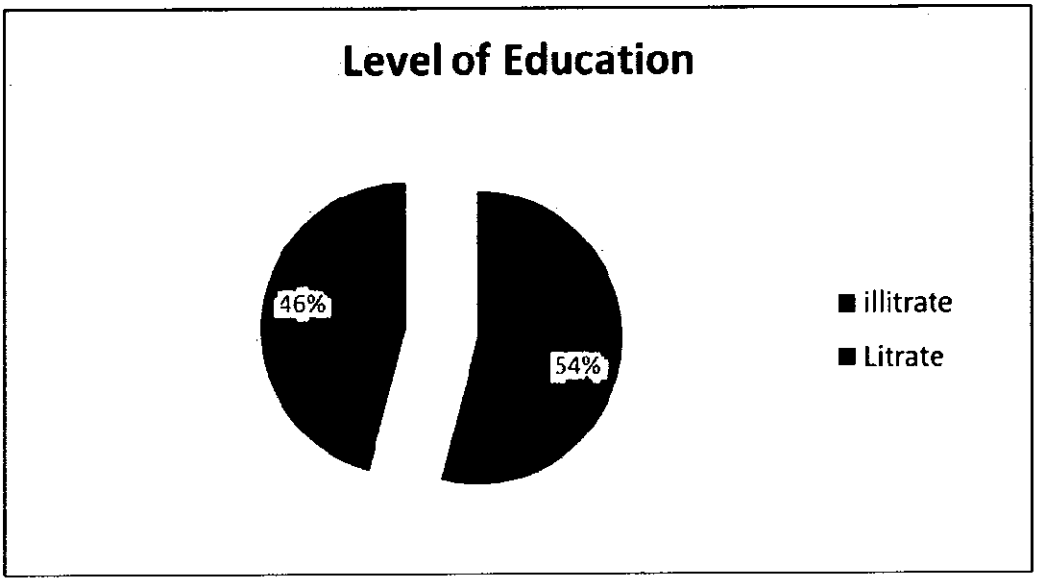

Figure 4: Overall %age of literate & illiterate respondents

4.2.3 House Hold size

The house hold size of all the selected villages is statistically significant showing no similarity among the house hold size. About 46.2% of house holds size ranges from 4-10, 30.3% were having 2-5 family members and 23.5 % of house holds size of respondents in all the villages was above 10 family members (Figure 5).

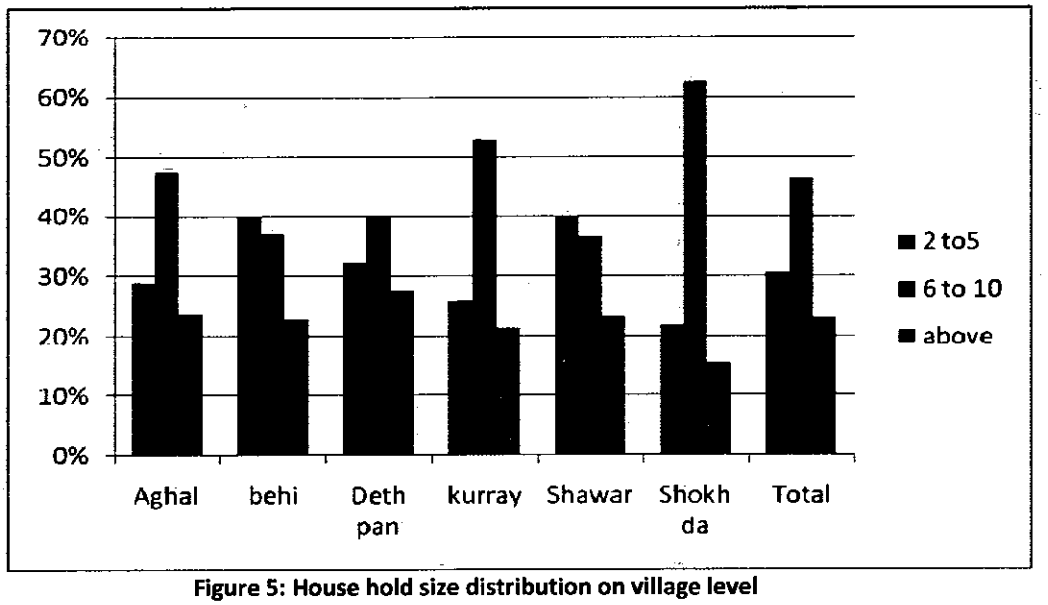

Figure 5: House hold size distribution on village level

4.2 Social Impacts of military operation

4.2.1 Agricultural land affected

The difference between the agricultural lands affected due to the military operation was statistically significant, implying that the land affected of the respondents of selected villages in Mata Tehsil is not similar. About 99 % of the residents in the Swat belong to agriculture directly or indirectly. With the exception of a few, all the landowners have small tracks of land. These holdings are so small that the holders are not only landlords but they are peasants too[65].

The significance level of the land affected due to military operation is because of the fact that some respondents do not have any agric land and belongs to other professions and some respondents do have agric lands but the military did not allow them to go to their fields.

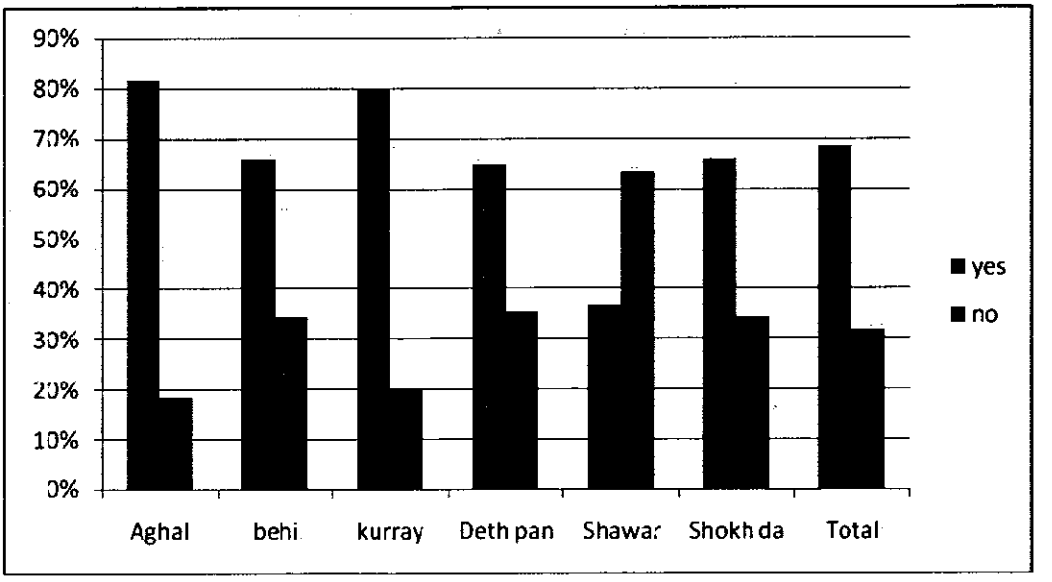

Figure 6: Land affected due to military operation on village level

[65] (IPRI fact file, 2009)

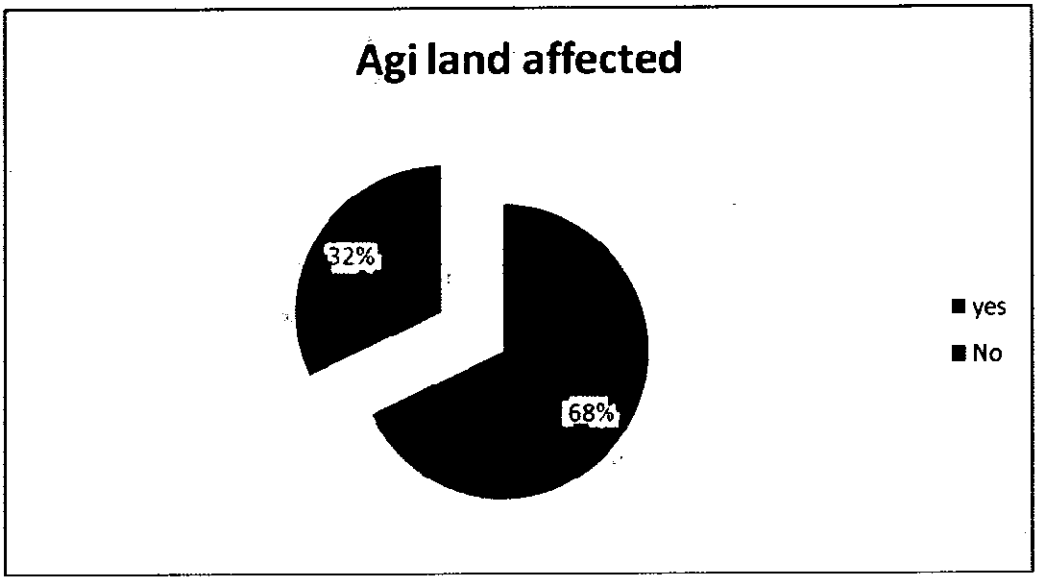

Figure 7: Overall %age of land affected

4.2.2 Economic effects due to military operation

Edward Miguel studies the long term impacts of bombing in Vietnam and concluded that there are no long term effects of intense bombing in Vietnam[66]. But it was clearly evident from the current study that in short terms there are adverse effects of war on the local poverty level and economic situation of the local residents. The difference between the residents of local area affected due to the military operation was statistically significant, implying that the local population affected due to military operation of selected villages in Mata Tehsil is not similar. The reason might be that because some respondents work in the foreign and some are government servants so the military operation does not affect these respondents. Otherwise 80% of the local population has reportedly experienced adverse economic losses due to damage to infrastructure, due to lack of access to their agricultural lands, army settlement, and threat from Taliban and Curfews (figure 8). Vietnam did not experience any long term effects of the world's most intense bombing because most the bombing was experienced by the rural areas of the country where there was very little infrastructure for damage[67]. But the fact is that if the overall growth rate of the country is growing and basic infrastructure is rebuilt, this does not mean that

[66] (Miguel et al, 2010) (university of California. national bureau of economic research)

[67] (Miguel et al, 2010) (university of California. national bureau of economic research)

the local population directly affected by the war did not experience long term economic problems. 80% of the respondents in the affected villages have reported serious economic effects due to the military operation. Still after two years of ending conflict in Mata (Swat) local residents face serious economical problems and government help is yet to come.

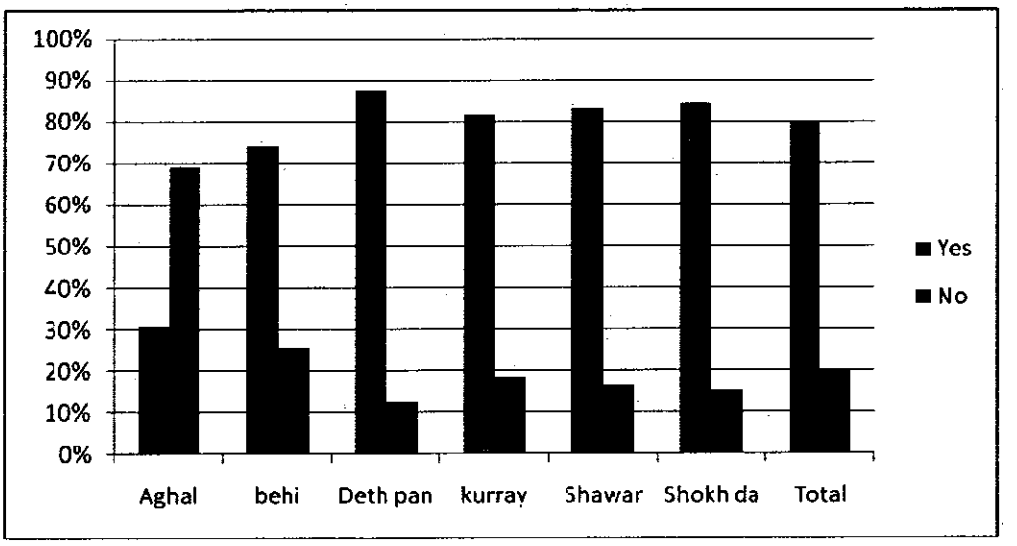

Figure 8: Economic affects due to M.O on village level

Another important factor counteracting the effects of U.S. bombing was the major Vietnamese government reconstruction effort after the war, with massive mobilization of labor and resources to rebuild damaged infrastructure and demine the country side[68]. However in Mata government has yet to play its role and there are strong possibilities that there will be many long term economic effects of the conflict and poverty traps.

[68] (Miguel et al, 2010) (university of California. national bureau of economic research)

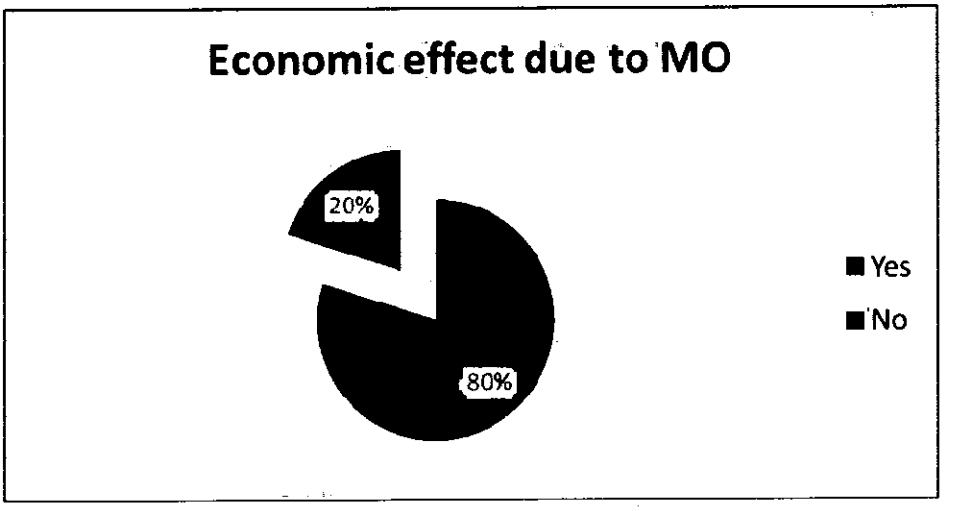

Figure 9: Overall %age of economic effects due to MO

4.2.3 Types of economic effects due to military operation

According to IPRI fact files 2009 more than 90 % of local residents are associated with the agriculture sector either directly or indirectly[69]. The .033 significance level shows that the local residents belongs to different profession and have faced different type's economic effects. Many people in the area face agricultural losses, loss in business due to lack of access to the markets, local labors also face unemployment but later they got a lot work when the reconstruction process starts.

About 82% of the respondents have reported to face agricultural loss due to the fact that they have little or no access to their fields so they are unable to raise considerable amount of crops to sell them in the market. Some of them also have little access to the market due to the uncertain security situation and curfews so are unable to sell their goods. Most of the people are not even present in the area because they have migrated to the other areas of the country (figure 10).

[69] (IPRI fact file, 2009)

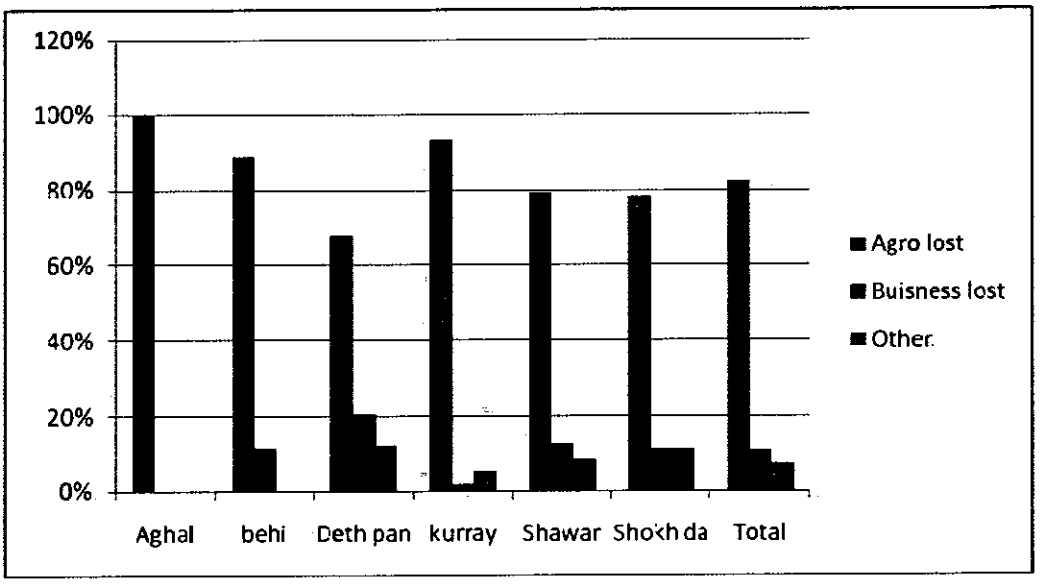

Figure 10: Types of economic effects due to military operation on village level

Swat is famous for its fresh fruits like apple, peach, Japanese fruit and pear. In Swat Valley, till 1990, apple was grown on 44.4% area mostly covering middle and upper Swat[70]. In the late 90s, the trend shifted toward peaches. While in lower Swat persimmon is a common fruit crop[71]. Many of the local residents are related to fruit business (packing, storing, transport to other areas of the country and even its export) also experienced business lost. Local labor related to this fruit business and agriculture is among the all that face the economic impacts of the military operation in the area.

[70] (Inam, 2000) (Addressing Environmental Consequences of War. Background)

[71] (Nafees, 2008)(Addressing Environmental Consequences of War. Background)

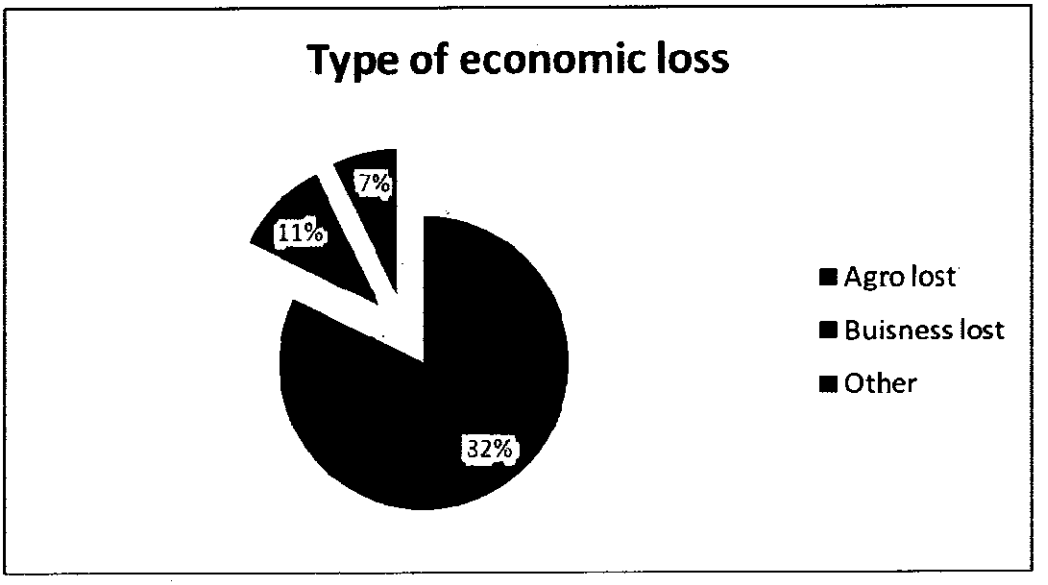

Figure 11: Overall %age showing types of economic losses

4.2.4 Migration due to military operation

Due to this operation mass displacement of people occurred in May 2009. Estimated population displaced from Swat valley is 1.3 million. After the completion of operation displaced people returned to their homes on 13 July 2009[72]. The non significance level of 0.119 clearly shows that their vast similarity between all the respondents of the selected villages.

About 83.3% of the local residents migrated due to this military operation. 16.7% of the respondent gives a negative answer regarding the migration during the military operation. This might be because they settle down for taking care of their properties in the area or feel safe from the military operation and its impacts (figure 12). It is clearly evident from table 4-6 that their is a strong relationship between the economic effect due to the military operation and migration of the local residents. All the respondents that have migrated due to the military operation face serious economic impacts due to lack accessibility to their lands, shops and works and also because of the damage done to their infrastructure by the Taliban or military.

[72] (Fazal. publication 2009)

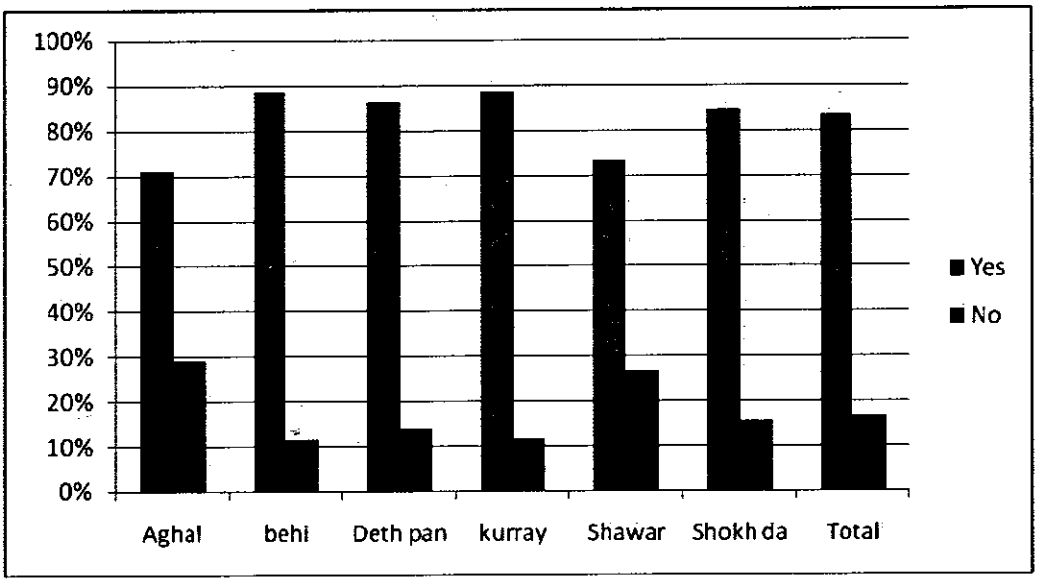

Figure 12: Migration due to M.O on village level

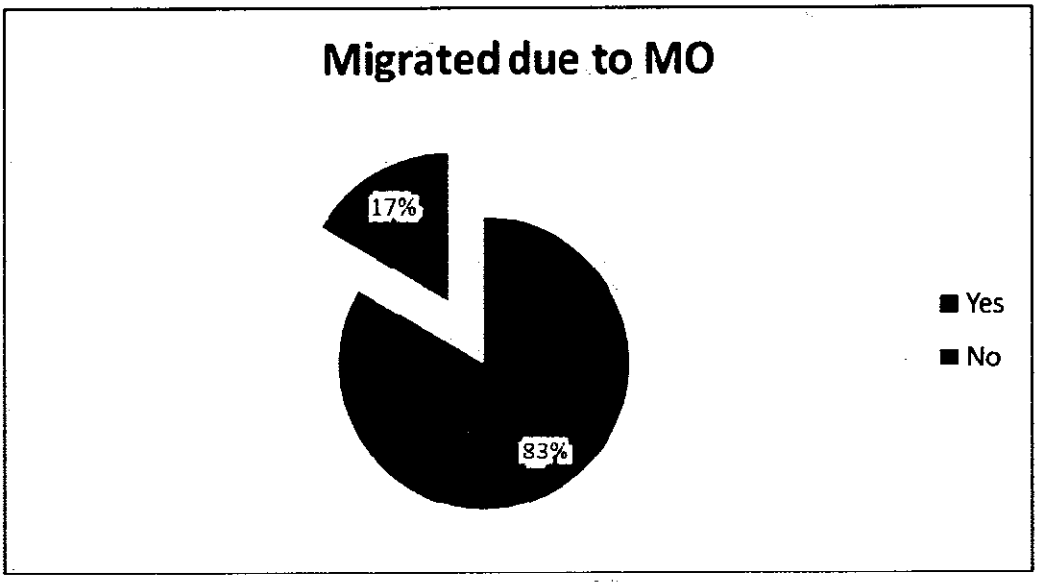

Figure 13: Overall %age of migration due to MO

4.2.5 Income from Live stock before and after M.O

Cross tabs of difference in income before and after military operation clearly shows the statistical significance level. About 39% of the respondents in the villages had a live stock income of 234 US $/year before military operation. This percentage then decreased by 30% after military operation due to the damage done to their live stock during operation. Most of the

respondents left their livestock behind during migration from the area and never got them back after their return. 33.5% of respondents had a livestock income of 235 US $ to 293 US $. This percentage increased to 37.8 % due to increase in the prices and also due to less competition from other competitors who had lost their livestock during operation.

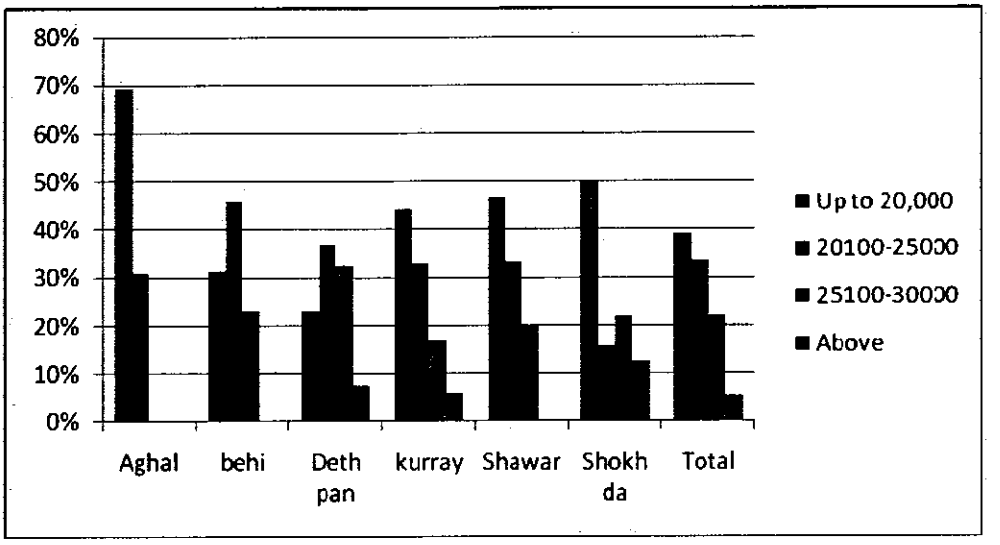

Figure 14: Income from Live stock Before M.O on village level

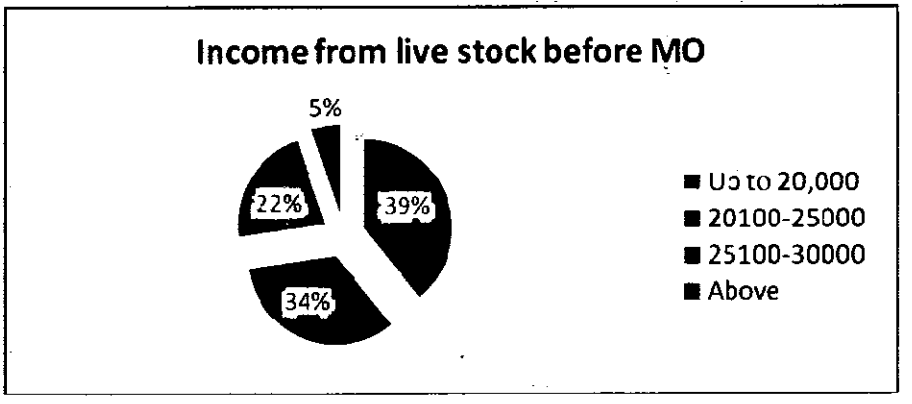

Figure 15: Overall %age of income from live stock Before M.O

22% of respondents had an income of 236 $ to 350$ and this percentage increased to almost 26% after the military operation. 5.3% of local residents reported income of more then 350$ and this percentage also increased to 6.9% after military operation. It might be evident that income has

been increased after military operation but with this increase the prices have also gone above at the end giving no economic benefits to the local residents.

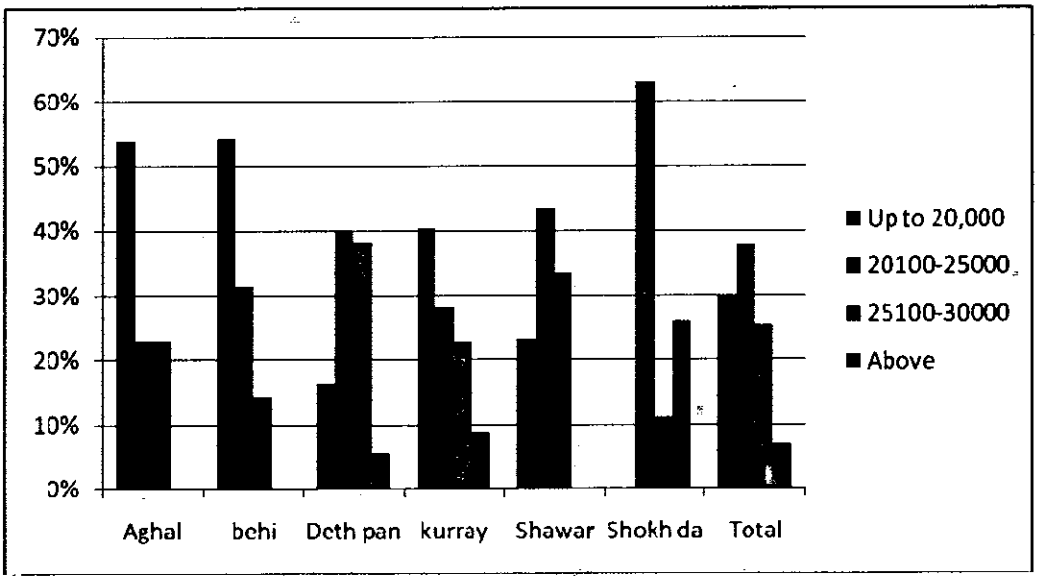

Figure 16: Income from Live stock after M.O on village level

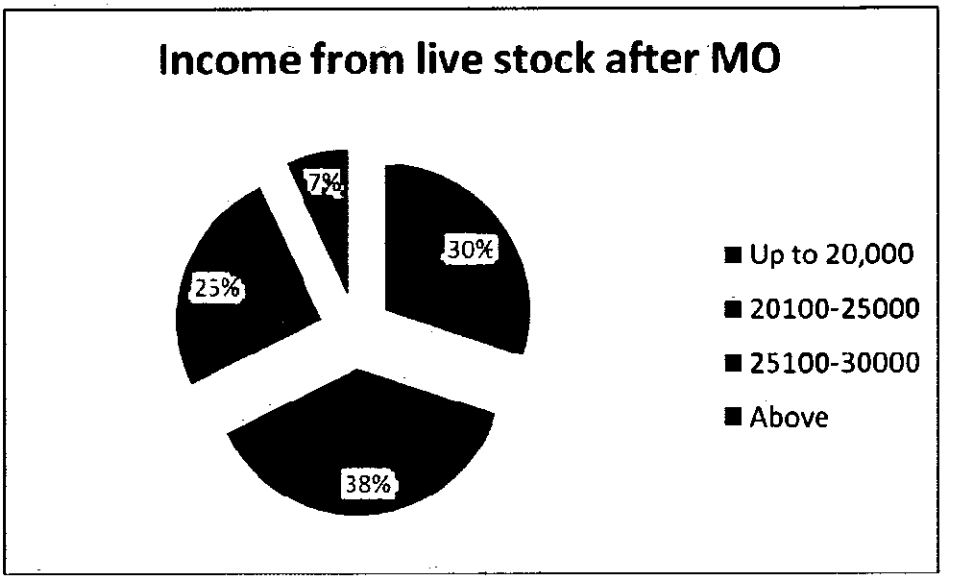

Figure 17: Overall %age of income from live stock After M.O

4.2.6 Damage done to infrastructure due to military operation

There is a high statistically non significance response regarding the damages done to major roads and bridge in the area. 100% of respondents have reported a positive response to the question

regarding the damages done to roads and bridges. About 65% have reported damages to their houses and shops. 47.8% of respondents have reported heavily damage to the electrical supply in the area, 25.9% have reported completely destruction of electric supplies and remaining 26% have reported partially damage done to electric supply systems in their area. Most of the bridges were destroyed by Taliban in order to stop the movement of army during military operation and most of the roads were destroyed due to road side bombs, movement of heavy armored vehicles like tanks and due to intense fighting in the area.

4.2.7 Health impacts due to military operation

There were no reports of any disease outbreak during or after the military operation in any of the six villages. There was no evidence of any increase or decrease in the diseases during or after military operation only a few respondents have reported the increase in miner diseases like flu. About 61.3% of respondents have face health problems during the migration period that might be because of hot climatic changes of lower areas of country. 9% of respondents have reported behavioral changes in the children and 12% in the adults. 64% people are affected by Taliban of which 24.7% were injured, 2% were killed, 4% were kidnapped and 71% were harassed by Taliban. Only 2% people physically affected by the military operation due to the fact that almost every person was migrated before the operation had started.

4.3 Environmental impacts of military operation

4.3.1 Wild life affected by military operation

In military operation 93% of all the respondents reported to have seen change in the wild life of the local area as evident from (figure 19). 7% people did not observe any change in the local wild life of the area. Many wild animals of the area are wiped out due to intense fighting and bombing in the area. Many bird species once seen often by the local residents have not been observed after military operation. The reason might be that the birds have migrated to other areas due to destruction of their local habitat due to fire and intense sound of gun fire and artillery shells.

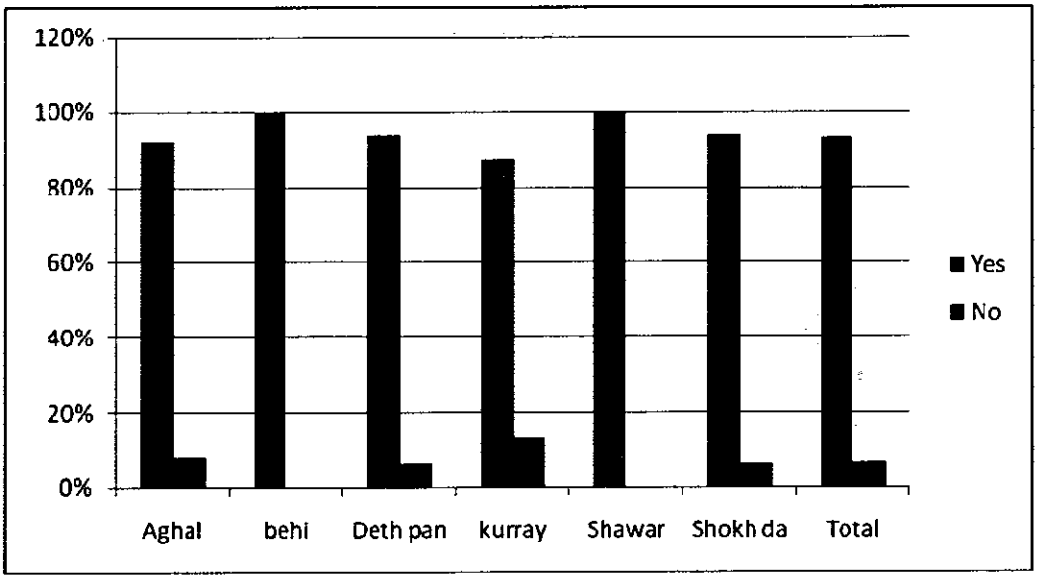

Figure 18: Wild life affected due to military operation

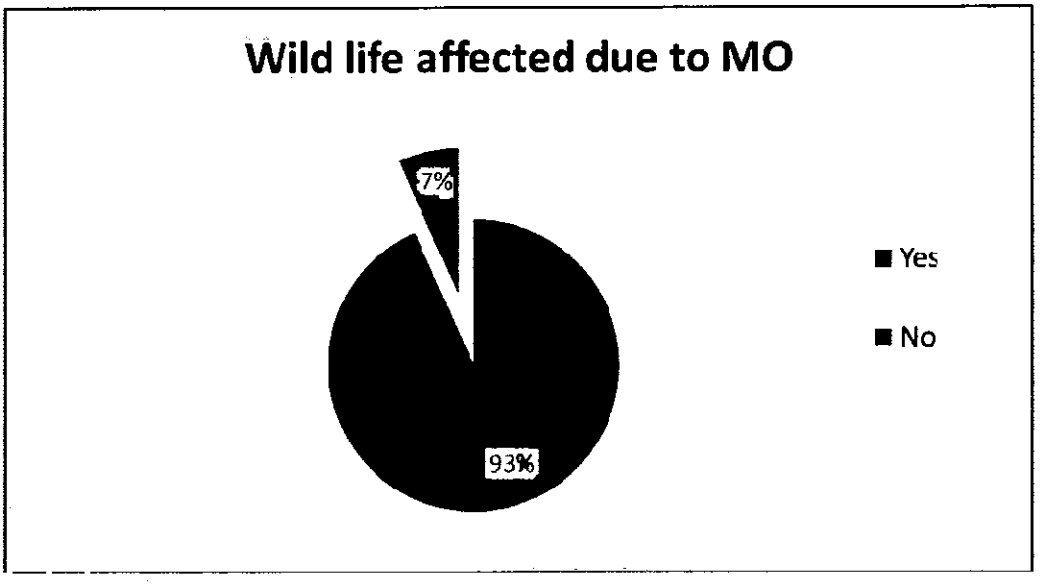

Figure 19: Overall %age of wild life affected

4.3.2 Natural resources affected due to military operation

Forests are the most affected natural resource during the military operation due to the fact that these are used by the militants as a hide out. Forests can provide refuge, funds, and food for combatants in civil war. Insurgents may also use forested regions to hide from government

troops and the government may choose to ignore them if they remain in remote forested regions[73]. That's why during military operation these were mostly bombed by the army to wipe out the militants hide out. All the respondents in Matta Tehsil have reported the damage done to forests in their areas and 2.5% have observed damage done to pasture lands.

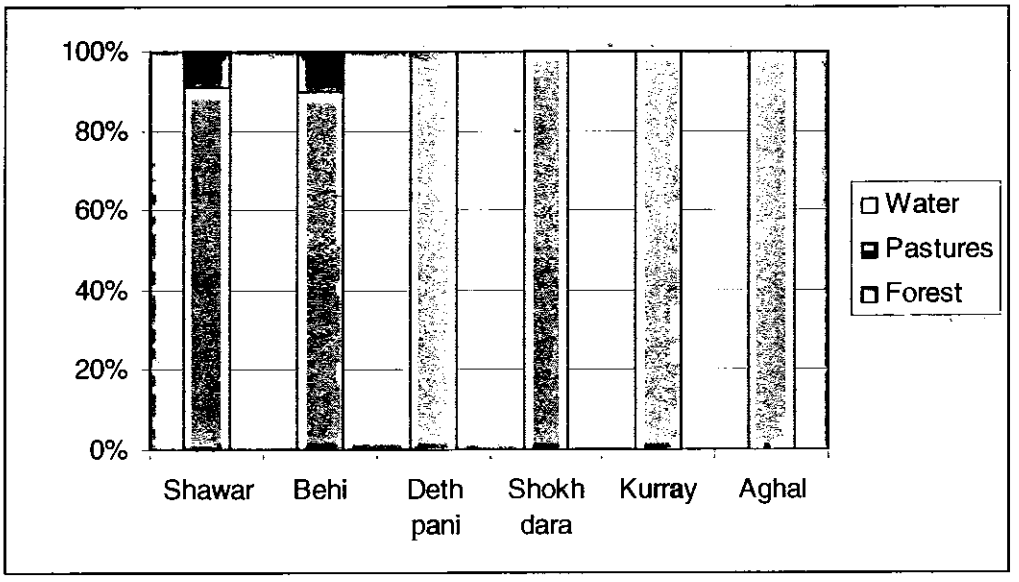

Figure 20: Damage done to natural resources

4.4 Sentiments towards army

4.4.1 Time period for Army settlement in your area

Most the people strongly reject the further settlement of army in their area. This is very important that all the local residents do not want any army settlement because of many problems especially due to behavior of army personals. Local residents want local police to operate in the area so that they can live easily. About 81.1% respondents want immediate withdrawal of army from the area. 88% of respondents showed un-satisfaction under the army and raised concerns towards their presence.

[73] (Rustad et al, 2008)

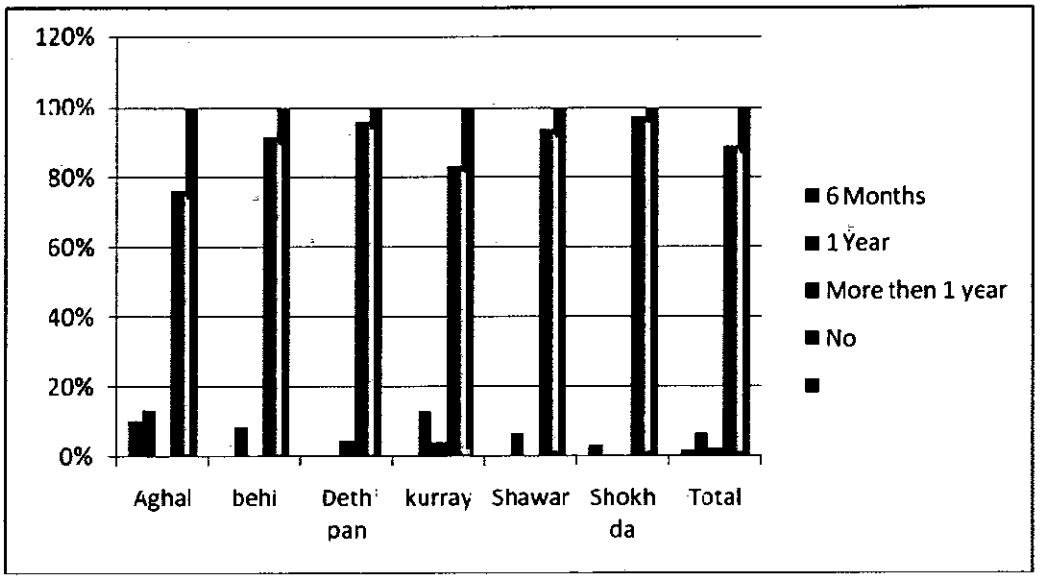

Figure 21: Time period for Army settlement in area on village level

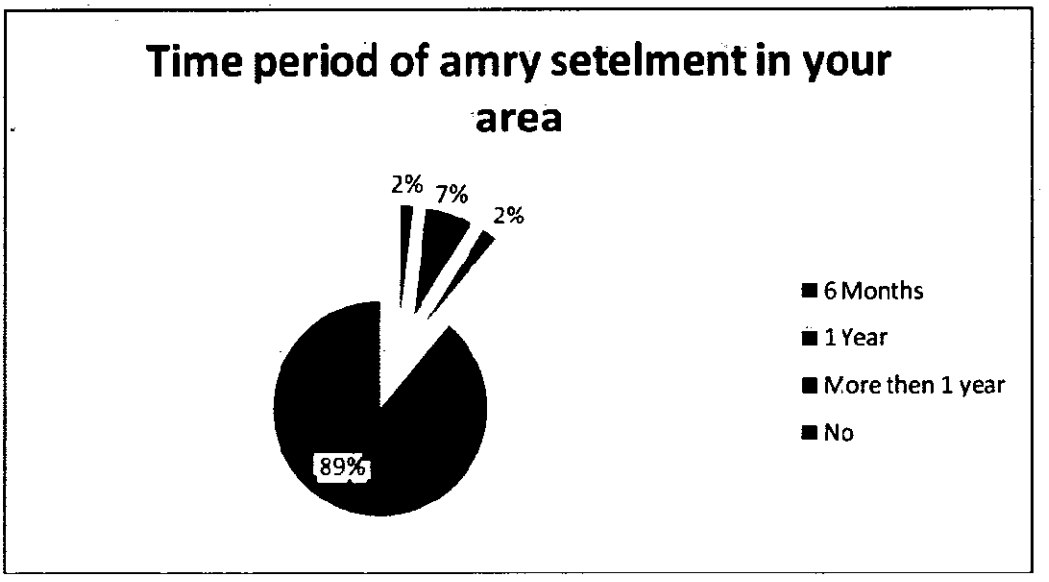

Figure 22: Overall %age of Time period for Army settlement in area

Secondary data was collected from the casualty unit of S.T.H Saidu Sharif Swat District. Data of past three years was collected for year 2007-2009 which experienced the main battle in the Swat District.

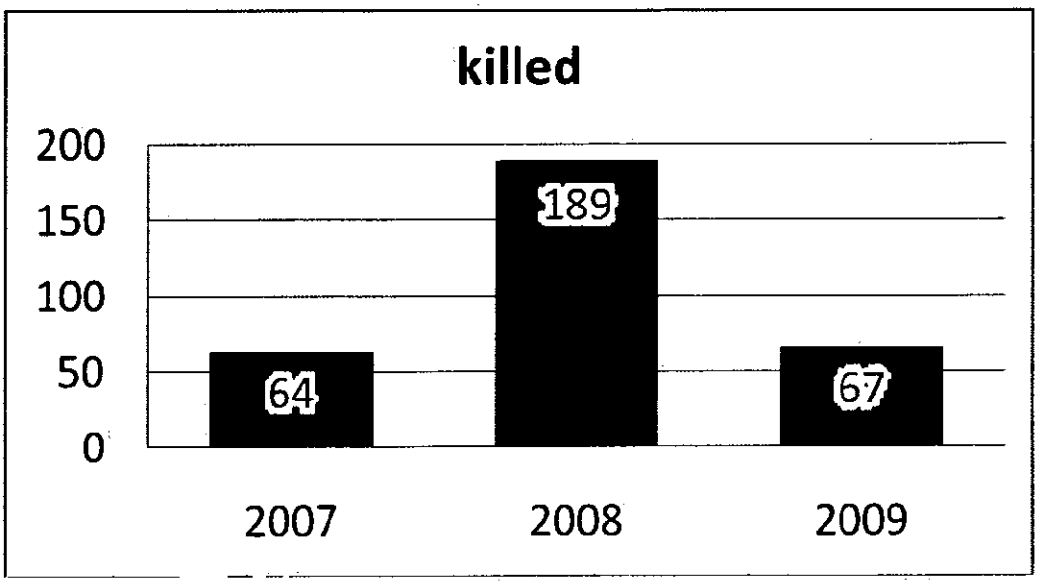

Figure 23: No. of civilian killed during three years

Figure (23) shows the number of civilian casualties reported from year 2007-2009 in the Saidu Sharif Hospital. Only 64 persons were reportedly killed in year 2007, least number of casualties due to war in all the three years. Death rate was higher in year 2008 and 189 persons were reported dead in the hospital. The death toll again decreased in year 2009 i.e. 67 persons reported dead in the Saidu Sharif hospital.

Secondary data for number of reported injured persons in past three years from 2007-2009 was collected from the casualty unit of S.T.H Saidu Sharif Swat District. Figure (24) shows 208 persons was reported for injuries in year 2007, least number of injured people due to war in all the three years. Year 2008 was most adverse and 1174 persons were injured due to war, higher number of injured person in three years i.e. 2007-2009. In year 2009 the rate of injured persons due to war again become less and only 536 persons were reported injured second lowest in three years.

Both figure (22) and (23) indicate that the year 2007 was less deadly then all the three years from 2007 to 2009. Year 2008 host the main period of conflict between Taliban and Armed forces of Pakistan as evident from the figure (22) and (23) that it is the most deadliest year in terms of killed civilian and injured one's. The death rate in 2009 again became low due to the end of conflict and the militants were wiped out from the area. Only 189 civilian were killed in the most deadly year of 2008 because of the reason that almost all of the local residents had migrated from the area and Pakistan experienced one of the biggest internal displacement of the world.

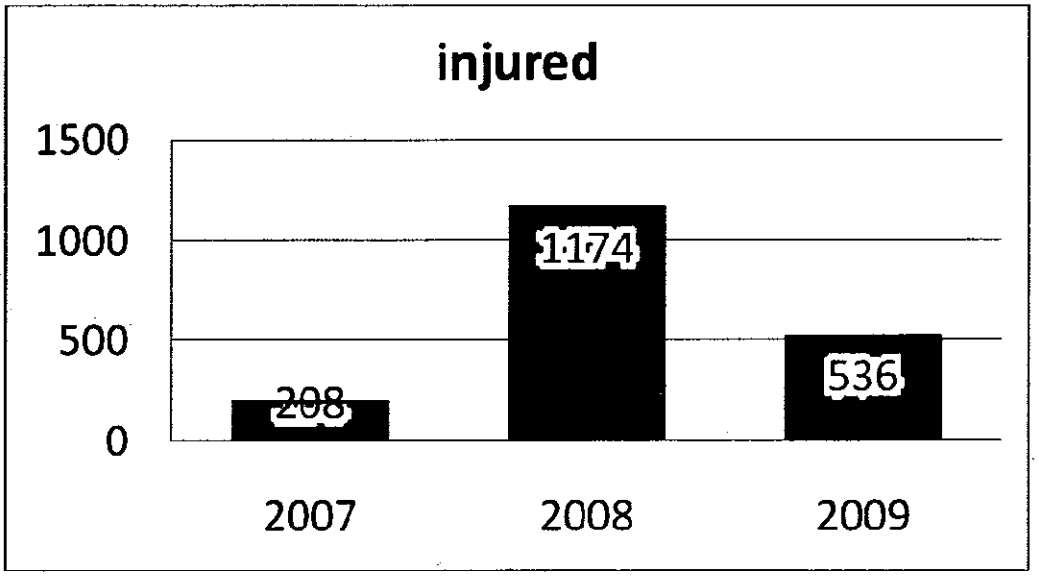

Figure 23: No of civilian injured during three years

4.5 Water Analysis

Three different streams were selected in the impacted area of Mata Tehsil near the affected villages. Ground water samples were also collected from the different wells, houses and water pumps near the impacted area of bombing during military operation. Different experiments have been conducted on the surface and ground water samples from the impacted area in order to access the impacts of conflict in the Mata Tehsil of Swat District. The test results clearly show that there are no adverse impacts of the conflict in the water quality of the area. The pH graph of first sampling visit clearly indicates that the pH of all the surface water samples of Mata Tehsil is

in range of 7.28-7.73 (figure 23) which is under permissible limits[74]. This result clearly matches the pH of Malakand Division determined by F.K Bangash in 2003[75].

There is no evidence of any contamination due to the military operation or bombing. Their is a slight increase in the pH of surface water samples in the second sampling visit because of the reason that the first sampling was done during the wet season and the second sampling was done in dry season.

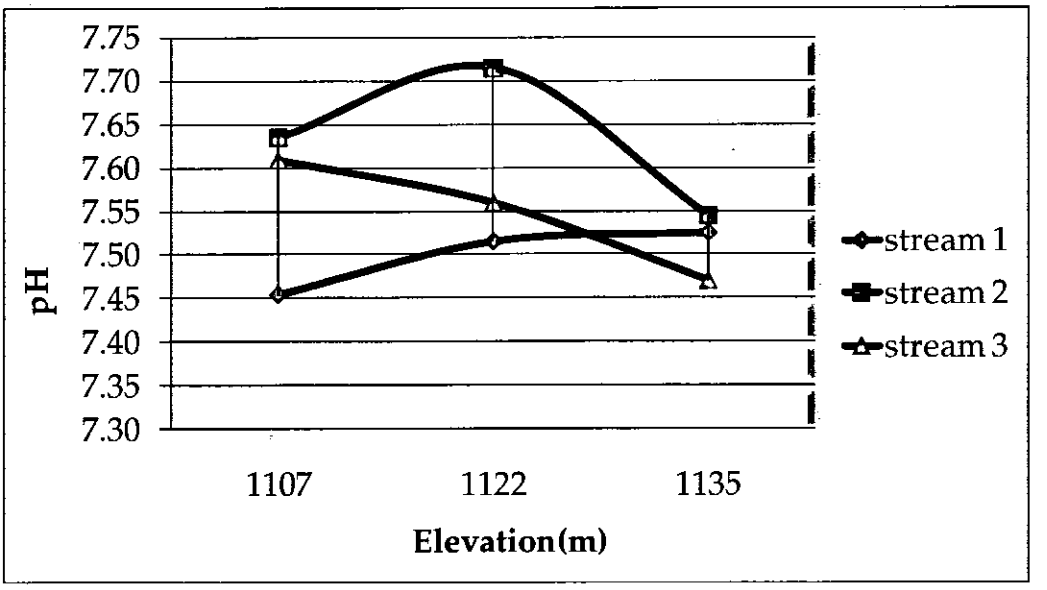

Figure 24: Surface water pH of streams in wet season

So this might be the reason of the slight increase in pH but all the results of second sampling clearly indicate that all the pH values are in range of 7.43-7.7 (figure 24) which is under permissible limit [76].

[74] (NSDWQ, 2008)

[75] (Bangash et al, 2003)

[76] (NSDWQ, 2008).

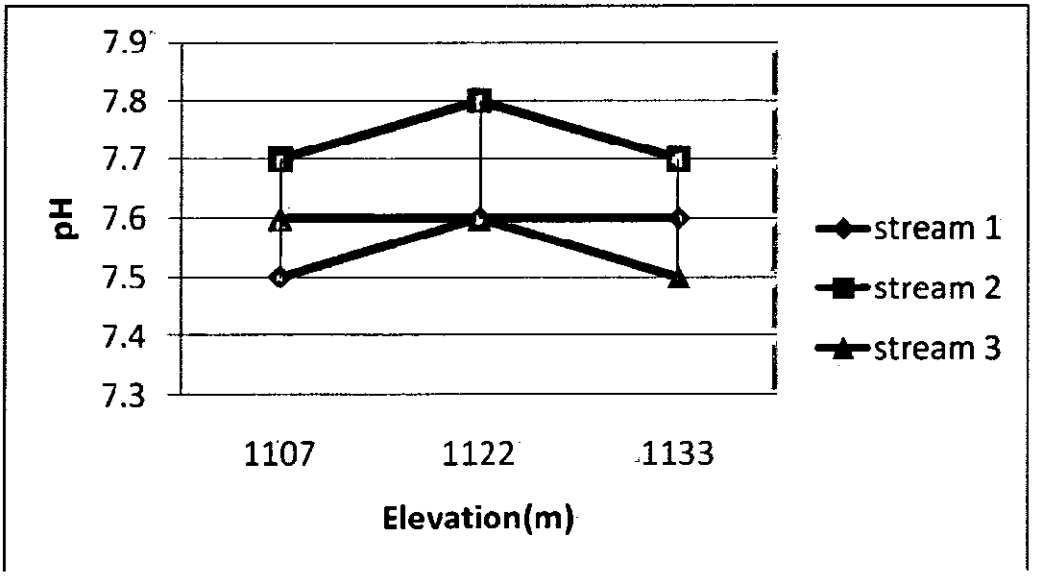

Figure 25: Surface water pH of streams in dry season

pH results of ground water sampling also does not indicate any contamination in the drinking water use by the local residents from any of the well and water pumps in the impacted area. All the pH results are in range of 6.9-7.57 and 7.06-7.54 in the both sampling.

Conductivity of the surface water samples from all the collection points of three streams ranges from 190 to 337 µS/m at different elevations. Which clearly indicates no adverse activity in the water and quality of all the three streams was under permissible limits (figure 26).

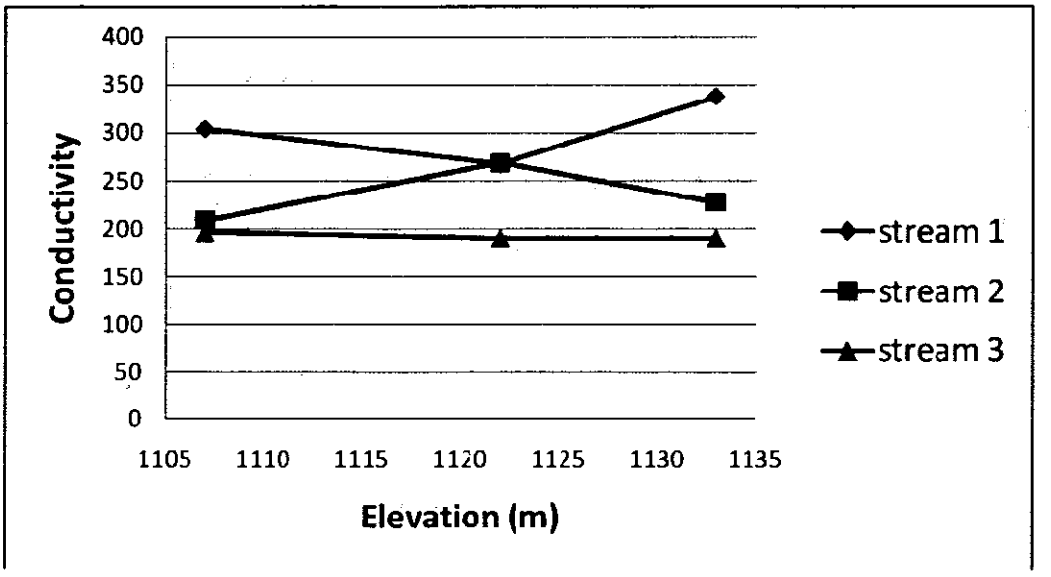

Figure 26: Surface water conductivity of streams in Wet season

The results from the second sampling also indicate no adverse impacts of the conflict on the surface water quality in the impacted zone. All the results show slightly decrease in conductivity of surface water samples in the second sampling visit. All the results lie between 179-311 µS/m which clearly indicate no adverse impacts of the military operation or bombing on the surface water quality. The first sampling campaign conducted in the wet season has slightly higher EC value then the second sampling campaign done in the dry season. Electrical conductivity depends on the total dissolve solids (TDS) in the water that's why sea water has higher EC and distal water has the least EC values. The higher values of EC in the wet season are due to the increase of TDS due to run off into the streams and other factors that increase the TDS in the wet season.

Ground water results ranges from 410 mg/L to 587 µS/m and for second sampling visit it ranges between 388 mg/L to 759 µS/m.

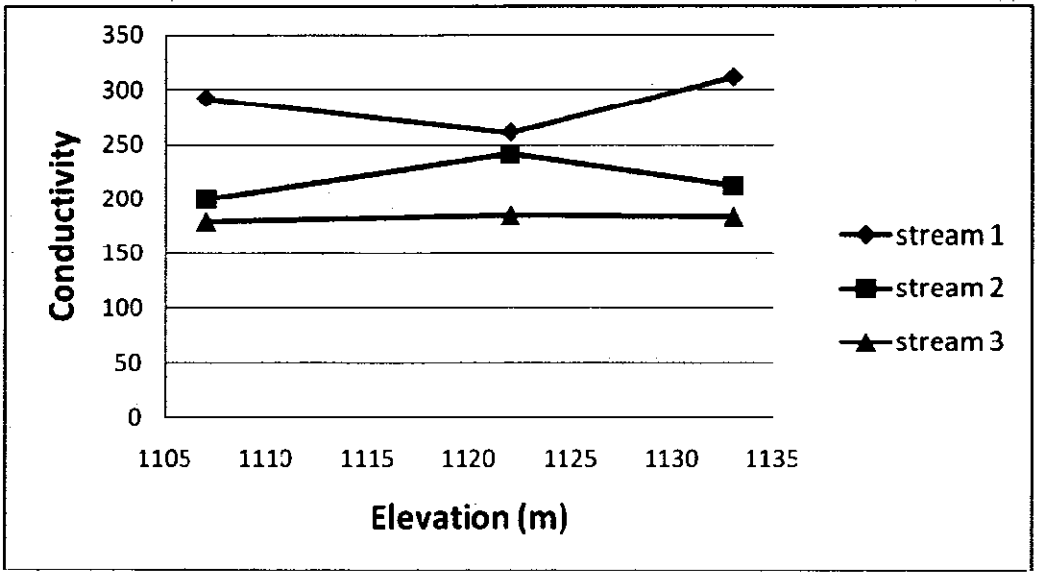

Figure 27: Surface water conductivity of stream in dry season

The observed COD values in all the 3 streams are varying from 17 to 81 mg/L. The permissible limit of COD for drinking water is 255 mg/L. In stream-1shows an inclined treads in the COD with increase in elevation from 1107 to 1133 meters. The COD of stream-1 varies from 17 mg/L to maximum of 81 mg/L at 1133 meters. Stream-2 COD values varies from 61 mg/L at 1107

meters then the COD value again rises at 1122 meters i.e. 72 mg/L and the value again decreases to 67 mg/L at 1133 meters. At elevation of 1107 meters the COD value of stram-3 is 62 mg/L and it gradually decreases with elevation to a value of 53 mg/L at 1133 meters.

The COD values of second sampling campaign in dry season vary from 22 mg/L at 1107 meters to 77 mg/L at 1133 meters. Hence the observed COD values in all the 3 streams are well within the desirable limit in both sampling visits (WHO). COD values of surface water samples varying from 17 to 81 mg/L which are also clearly under the WHO permissible limits[77].

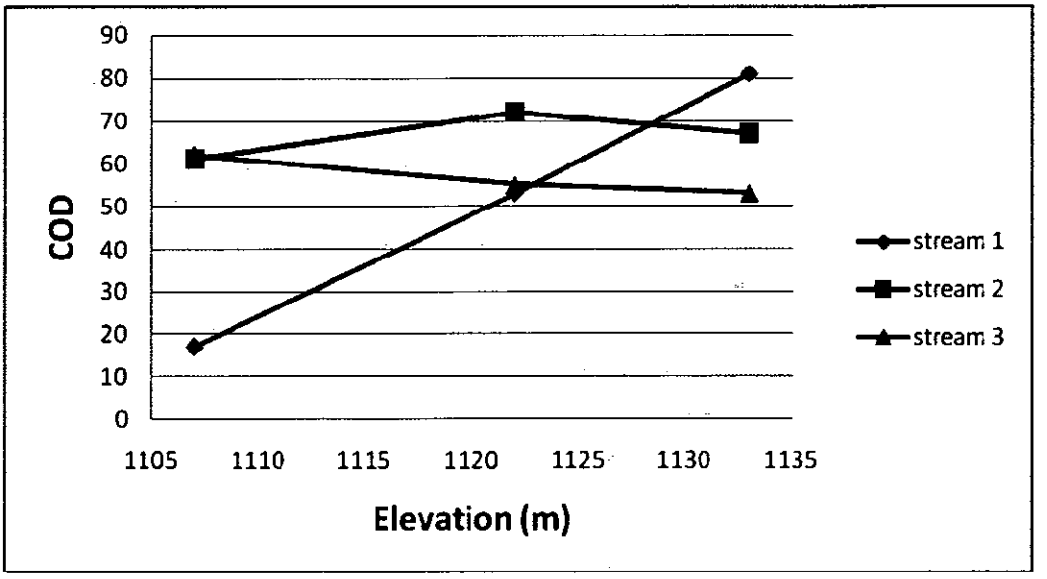

Figure 28: Surface water COD of wet season

[77] (Shyamala et al, 2008)

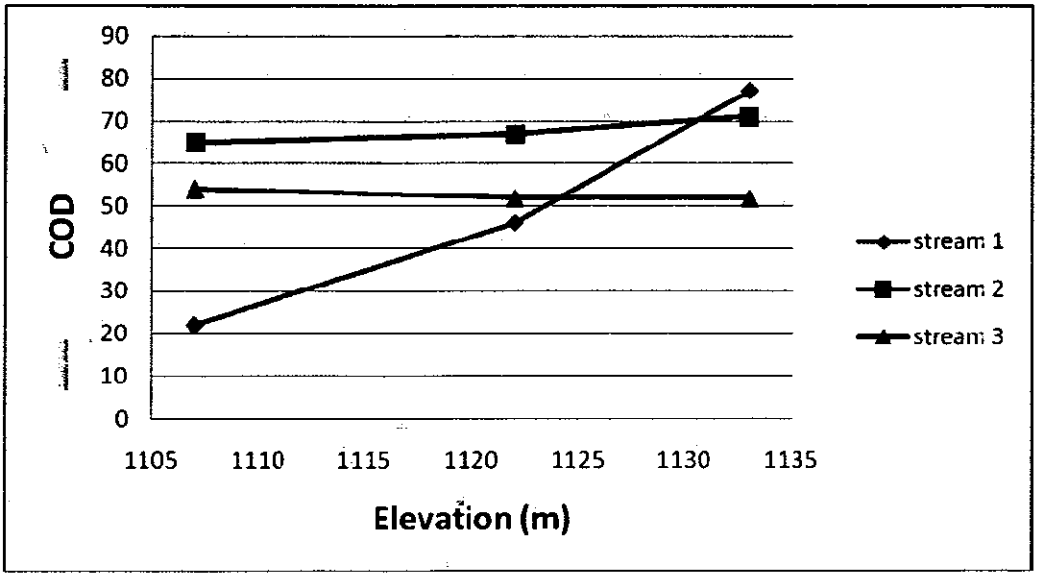

Figure 29: Surface water COD of dry season

Ground water samples collected from the nearby houses of the impact zones indicate no adverse impact of the bombing on the ground water pH. All the results clearly shows no traces of any contamination or change in the chemistry of the ground water and all the pH values are well with permissible limit[78].

pH values of all the samples collected from the houses near impact zones show uneven pattern with decrease in elevation. But ground water results clearly shows a seasonal change in the second sampling done in the dry season and all the pH values are slightly higher then the sampling done in the wet season.

[78] (Shyamala et al, 2008)

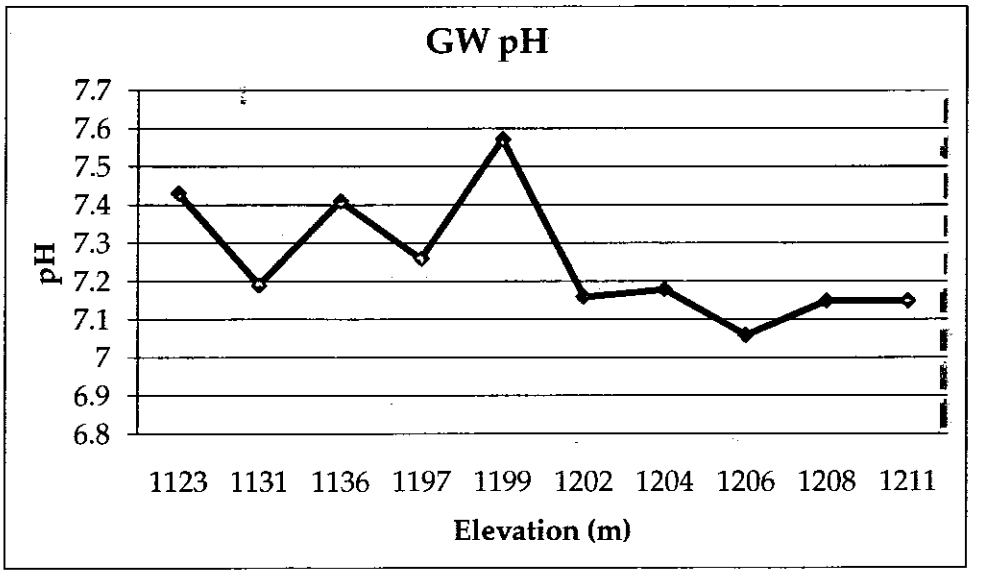

Figure 30: Ground water pH of wet season

COD values of ground water samples were also well within permissible limits of the WHO and vary from 9 to 53 mg/L. COD values of all the ground water samples decreases with decrease in elevation except at 1199 meters were the COD value was highest amongst all the samples.

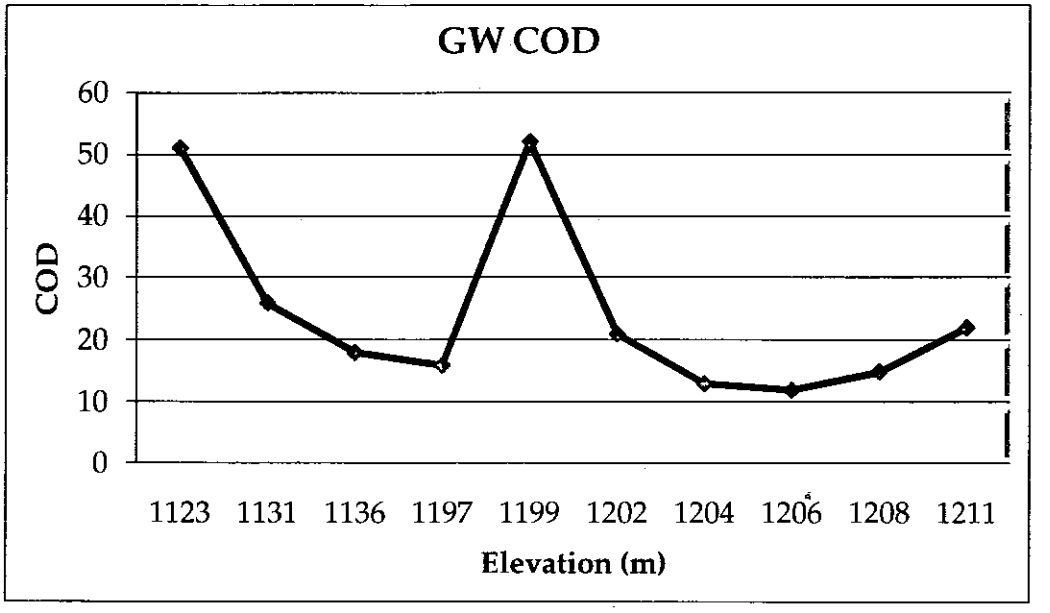

Figure 31: Ground water COD of wet season

4.5.1 TNT determination

2,4,6-Trinitrotoluene (TNT) is the most commonly used explosive since World War 1. Exposure to TNT has been reported to result in serious noxious effects, such as liver injury and noticeable changes in the haemopoietic system producing anemia[79]. All the surface and ground water samples collected from the impacted area under study were analyzed using US EPA 8330B method on high performance liquid chromatography. All of the test results indicate no evidence of TNT presence in the surface or ground water samples. The reason might be that all the explosives shells used in the bombing gives a high level detonation and leaves too little residues to contaminate the ground water[80]. The expected half-life of 2,4,6-trinitrotoluene in surface waters is 0.16-1.28 hours, based on the rate of photolysis and photo oxidation in sunlit natural waters[81]. Possibilities of surface water contamination due to the TNT are very low because of the fact that the selected streams are at some distance from the impacted zone. TNT does not undergo hydrolysis, as demonstrated by the stability of the compound in sea water after 108 days at room temperature[82]. So the possibility of hydrolysis in water is not possible in case to TNT. If somehow surface water became contaminated with TNT it would have washed out from the area because the current study is conducted after nearly two years of military operation in Mata Tehsil. Photolysis of 2,4,6-trinitrotoluene in aqueous solutions is a well-known phenomenon, which is responsible for the development of pink water and is probably the most important fate process for 2,4,6-trinitrotoluene in aqueous systems[83]. This may also be the reason for no detection of TNT in the surface water.

[79] (Ying Liu et al, 1995)

[80] (Jenkins et al., 2000)

[81] (Howard et al. 1991)

[82] (Hoffsommer and Rosen 1973)

[83] (US.PHS, p.101)

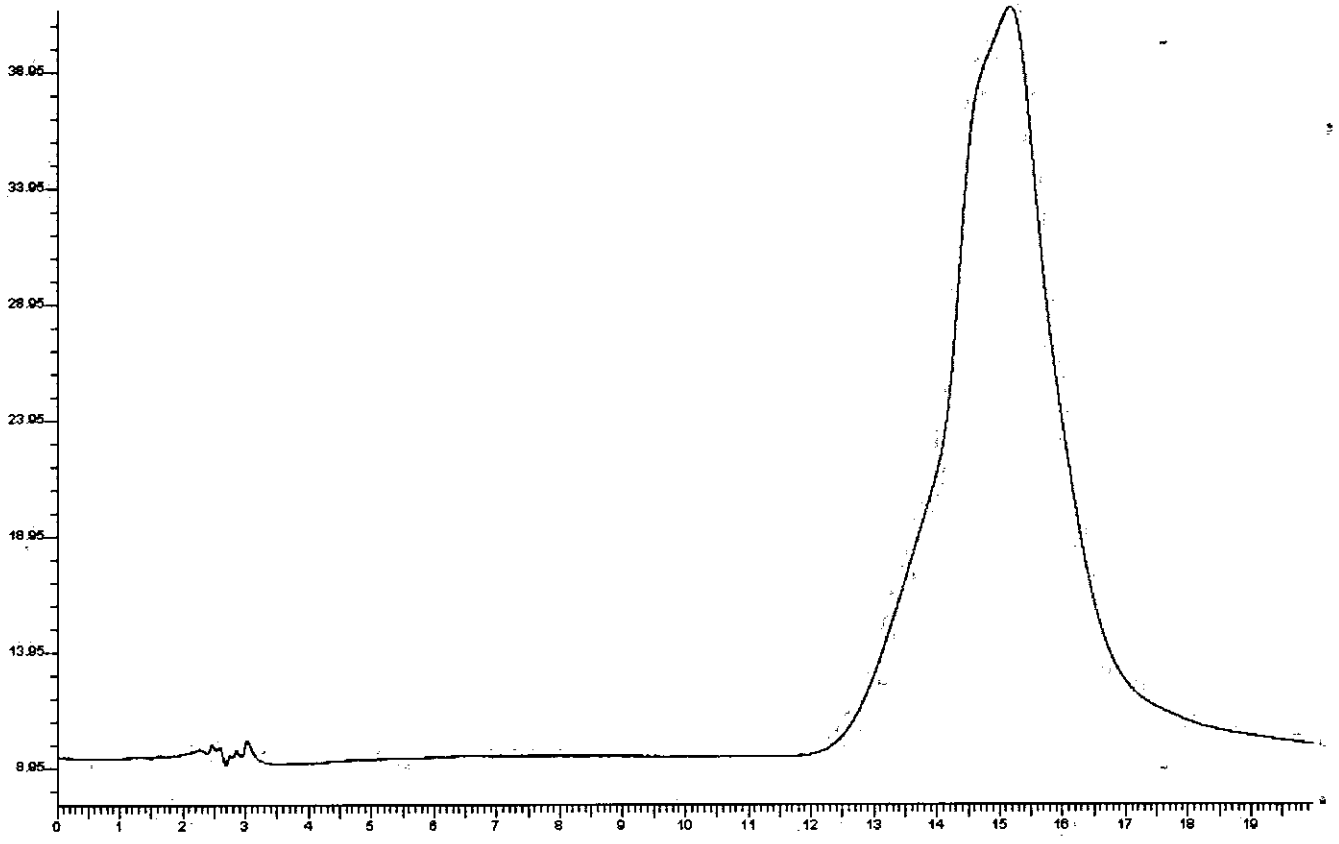

Figure 32: TNT standard peak by HPLC

4.6 Soil analysis:

Mata Tehsil remain a hub of the Taliban movement in the Swat District for many years until the military has conducted a decisive operation in this region to flash out Taliban from the strong hold of Mata. Heavy bombing was used against the militants in the area and the basic explosives used in the artillery shells were 2-3.5 kg TNT[84].

Soil samples were collected in two sampling visits from six point zones of the bombing and two reference zones which experienced no bombing during the military operation. The observed pH values from all the point zones (surface/sub surface) indicates normal H+ ion values of normal agricultural lands between 7-8[85]. pH of soil samples collected in the dry season was slightly

[84] (www.POF.com.pk)

[85] (McCauley et al, 2009)

lower in pH then the samples from the second sampling visit which was conducted in dry season. The reason might be that the precipitation in the wet season causes increased in leaching of base cations and soil pH become slightly lower than during the dry season[86].

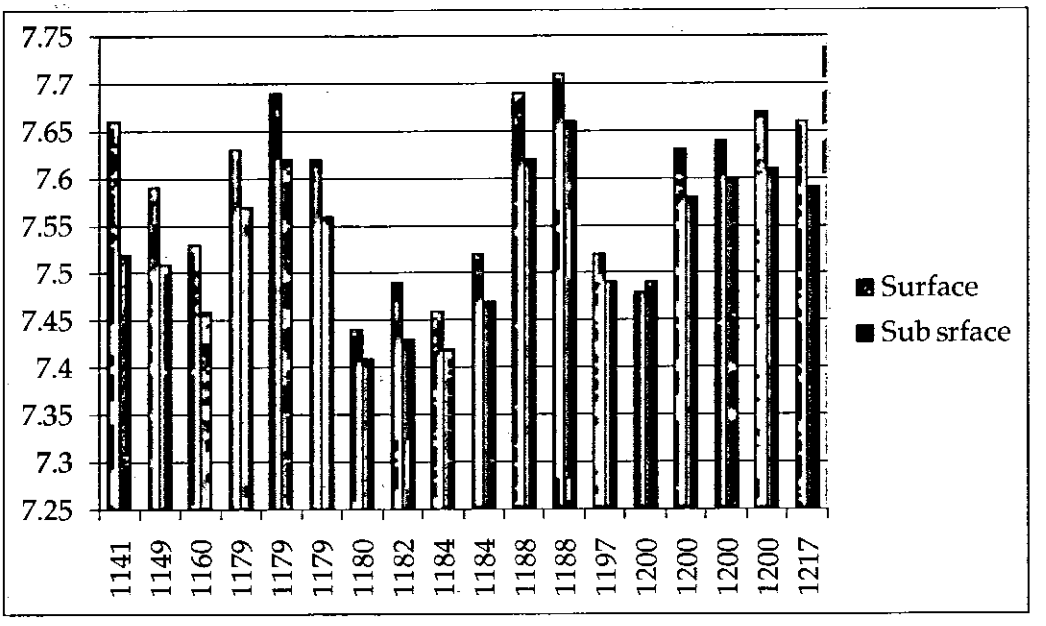

Figure 33: Soil pH of surface and sub-surface samples

There is no clear indication of difference between the pH of point and reference zones soil samples from the impacted area of 2009 military operation. One important point regarding the bombing and its impacts on soil is that the pH of the soils exerted no effect on 2,4,6-trinitrotoluene adsorption, desorption or transformation[87].

4.6.1 TNT determination

US EPA 8330B method for detection of explosives was followed by using high performance liquid chromatography[88]. Surface and sub-surface samples of all the point zones were analyzed but no traces of TNT were found. The reason might be that all the explosives shells used in the bombing gives a high level detonation and leaves too little residues to contaminate the ground

[86] (McCauley et al, 2009)

[87] (US.PHS, p.99)

[88] (Felt *et al.*, 2008)

water[89]. The possibilities of the TNT detection were higher in upper soil due to the fact that most of the detection is observed by Clausen et al is above one foot in death[90]. Two more surfaces and sub-surface samples were analyzed with difference of 5 meters from the impact area but no traces of TNT was found. This might be because with increase in death and distance from the target area the concentration of TNT decreases rapidly[91]. Solid chunks of 2,4,6-trinitrotoluene buried in soil or exposed on the soil surface can persist for many years[92]. In smaller amounts 2,4,6-trinitrotoluene may undergo photolysis in surface soils[93].

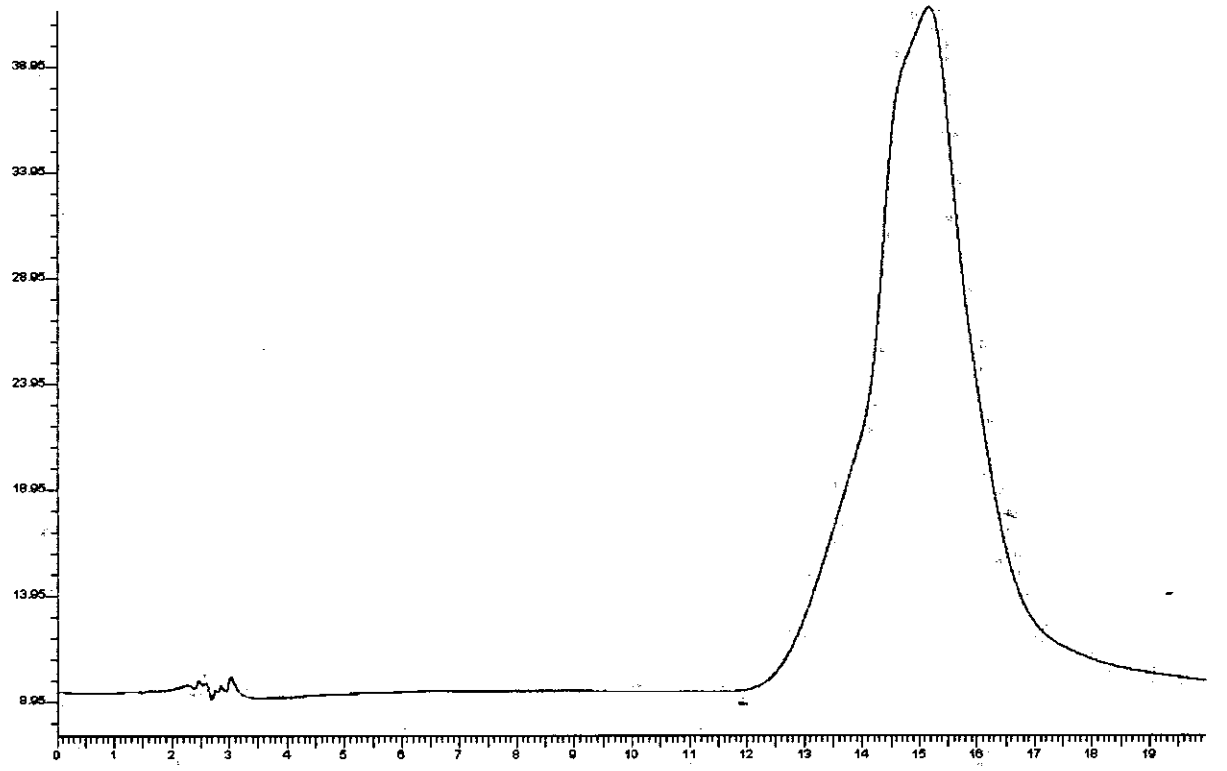

Figure 34: TNT standard peak by HPLC

[89] (Jenkins et al., 2000)

[90] (Clausen et al, 2004)

[91] (Clausen et al, 2004)

[92] (Rosenblatt, 1980)

[93] (Ryon et al, 1984)

One of the most strong reasons for the removal of TNT from water and soil is the 2010 July 2010, resulting from heavy monsoon rains in the Khyber Pakhtunkhwa, Sind, Punjab and Baluchistan regions of Pakistan and affected the Indus River basin[94]. These were the worst ever monsoon rains in these areas in last 80 years. Heavy rainfalls of more than 200 millimeters (7.9 in) were recorded during the four day wet spell from 27 July to 30 July, 2010 in the provinces of Khyber Pakhtunkhwa and Punjab based on data from the Pakistan Meteorological Department. About 338 mm of rains were recorded in Saidu-sharif area of Swat.

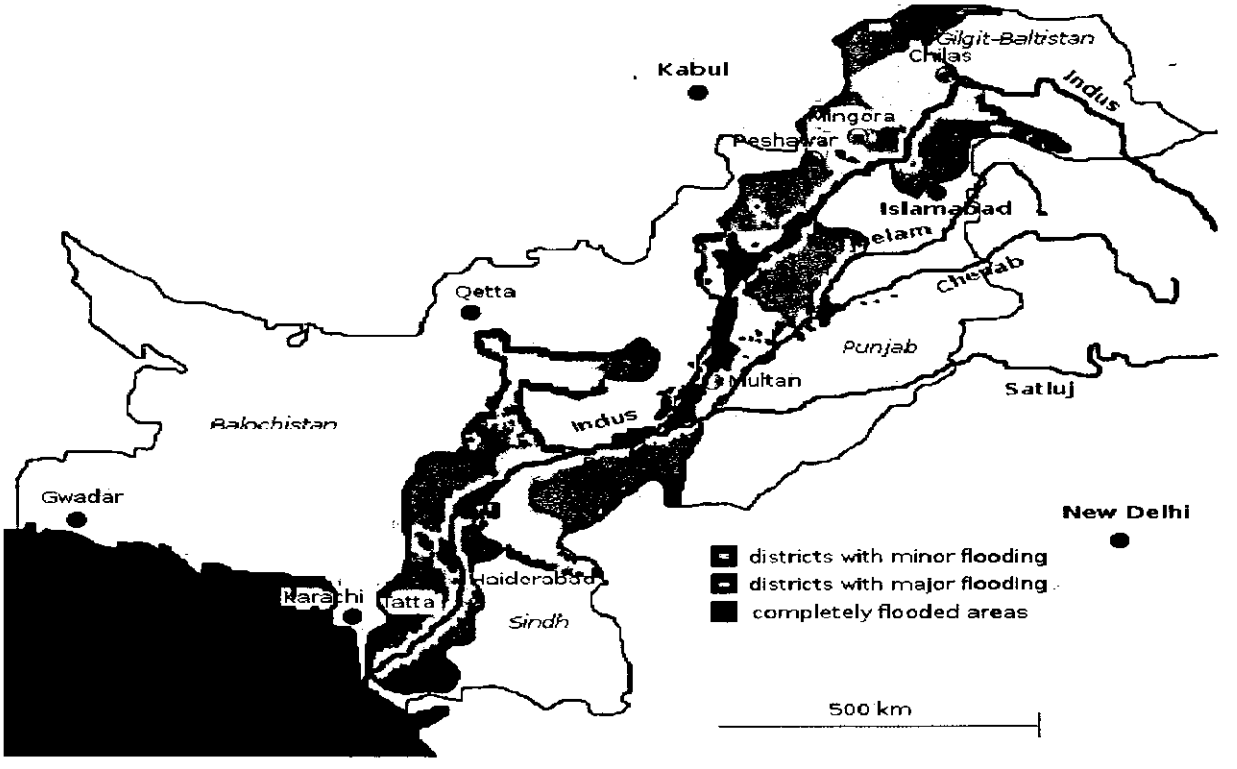

Figure 35: Flood affected area of Pakistan in 2010 flood.

Soil texture of Mata Tehsil as compare to Lower Dir area of Malakand Agency is mostly composed of 60-70% of sand and rest is clay and silt on the upper layers[95]. The sandy soil texture and heavy precipitation in the area has most probably washed out all the negativeimpactsof military operation in the area including the traceamountsof TNT .

[94] (BBC News 2010)

[95] (nafees et al, 2008b)

Chapter 5

SWAT PRESENT CONDITION /RECOMMENDATIONS AND REHABILITAION PROCESS

There is no chance the Taliban will ever be able to return to Swat where life has returned to normal and the community is busy in reconstructing the social and economic infrastructure. The

people of Swat themselves are the biggest block against such a possibility because they have seen the true face of the terrorists, were word of Major General Javed Iqbal Ramday.[96].

The Term Rehabilitation whenever used for the War Torn areas and specifically for the areas of civil war is not just for criminal and social justice but with a much wider and deeper meaning. Rehabilitation applies to forge a new life out of the ruins of the War torn affectees. It differs from relief in that problems of immediate survival have become overlain with problems of adjustment to circumstances of relative peace. The resources used for rehabilitation can both distort the implementation of old or fresh economic and social development plans, or they can be used to restore the kind of neo-liberal development policies that may well have contributed to the conflict in the first place. In other words, rehabilitation, like relief, becomes a recurrent feature or permanent condition for many communities. For rehabilitation to break out of this 'non-recovery' cycle it would have to "be a process of social, political and economic adjustment to, and underpinning of, conditions of relative peace in which the participants, especially those who have been disempowered and immiserated by violence, can begin to prioritise future goals beyond immediate survival. Survivors not only need a stake in achieving these adjustment goals but need ultimate direction over the means to achieve them[97]. During the process of Rehabilitation, it should be made sure the conditions of recipients, local authorities are changed. Moreover, the direction of the process is significant because when survivors do not have a stake in making adjustments, or in reforming relationships, then the process itself is likely to fail and recidivist pressures for re-newed conflict can become ascendant.

Complete Rehabilitation of terrorism affected people and counter terrorism hit areas particularly the scenic valley of Swat will take years, but nevertheless a thorough and speedy initiative needs to be launched immediately. To demand an immediate rehabilitation is sane but to demand a realistic and well planned rehabilitation is critical. Society and its infrastructure in the areas are severely devastated. It is not a single area of human living that can be termed the most hit but an overall damage to every aspect is now well evident from the impacts and debris. By now some of the rehabilitation work is underway; and some of the non-governmental agencies have turned to

[96] (Express Tribune, 14th of June, 2011)

[97] (Pugh, Dec 11 1998)

Swat to intervene. It is a welcome move and should be applauded. But the concern the local expertise expresses is the haphazard rehabilitation activities by the non-governmental agencies; the governmental agencies have yet to find a space in the area or they are too lazy to move on. With the discussion of impacts of Conflict of Swat we should discuss the rehabilitation activities in the District Swat in different aspects of Locals and their surroundings.

Before we start discussing the concerned areas of rehabilitation as per Government Machinery and NGOs, let us have some general information about the District Swat.

The total area of District Swat is 5,337 KM^2. Saidu Sharif is the District's Capital. Swat is related to Education as Zone III. This zone is divided in to Two Tehsils i.e. Swat, Matta and Sixty Five Union Councils. Literacy rate as per 1998 data was 28.29% (Male 42.79%, Female 12.89%). According to Census of 1998 District Swat Population is 1,257,602(Male 648,004, Female 609594). Average annual growth rate is 3.37 % which is quite low. The average household size of the district is 8.8 persons which is above average in comparison with other areas of Pakistan. Rural population as per 1998 Census is 86.17% and Urban Population is 13.83% which means 86.17% of the people in District Swat do not have the Metropolis facilities credit goes to National and Provincial Government. For the information, up till now, 283 NGOs are given No Objection Certificate (NOC) to work in different of Khyber Pakhtunkhawa and mainly in Malakand Division out of which 80 NGOs are working in District Swat on Different Sectors.(Swat Education Board)

5.1 Education

It is the duty of Every Muslim Man and Woman to seek Education, as per Holy Prophet Muhammad S.A.W. From this Holy saying we can derive that every man and woman should seek education and it is the duty of Government to provide ample situations, locations and environment to its citizens to seek education to whatever level they want to reach in education. Unfortunately for District Swat the War on Terror was a real setback to the education of Children and Elders.

Total number of Government Schools in District Swat is 1580(Boys 1009, Girls 571) which has the strength of 296,468 Students (Male 190,981, Female 105,487), numbers of Male Teachers

are 5,530 and Female Teachers are 2,587, in total 8,117 teachers. For every 36 students there is one government teacher[98]. Total numbers of damaged schools as per their School Levels, during 2008-2009 are as below:

- 6 Schools of Higher Education were fully damaged (3 each of Boys & Girls School), and 6 were partially damaged (5 boys School, 1 girls School), total number of students affected by this Chaos was 9276 [99]

- 25 High Schools were completed damaged (13 Boys School, 12 Girls School) and 28 High Schools were partially damaged (26 Boys School, 2 Girls School) affecting the studies of 19,024 Students in District Swat[100].

- 31 Middle Schools were no more which affected the studies of 1668 Male Students of 10 Schools and 1878 Students 21 Schools [101]

- Primary Schools were the worst Hit in the region and it is quite painful in the field of education because the primary school grooming of a kid is so vital to keep him running in his future life. A Huge loss of 267 schools which were either fully or partially damaged which proved to be an educational dent in the lives of 54,897 students which include 27,299 boys and 27,598 girls.[102]

I am pretty sure that the above ninety thousand students that lost their education during this tenure would be having no hand in attack on WTC. Rehabilitation of the partially and damaged structures is required on urgent basis. Let's us check the performance of Pakistan Government and NGOs in district Swat for the Rehabilitation of Education.

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[98] (Swat Education Board)[survey reports on educational damages in swat during war]

[99] (Swat Education Board).

[100] (Swat Education Board)

[101] (Swat Education Board).

[102] (Swat Education Board)

5.1.1 Swat Elementary Education Program (SEEP) by UNICEF

SEEP is program launched by UNICEF for the rehabilitation of Education in District Swat. SEEP has been supporting since January, 2007 to date. SEEP has distributed its Educational Rehabilitation Activities in to two Projects i.e. SEEP Education, and SEEP Emergency Activities. In SEEP Education, 23 Community Feeder Schools and 8 Girls Community Middle Schools have been completed and Operational in different Tehsils and Union Councils of District Swat. Mobility Support to Female Teachers and Female ADOs have been provided.

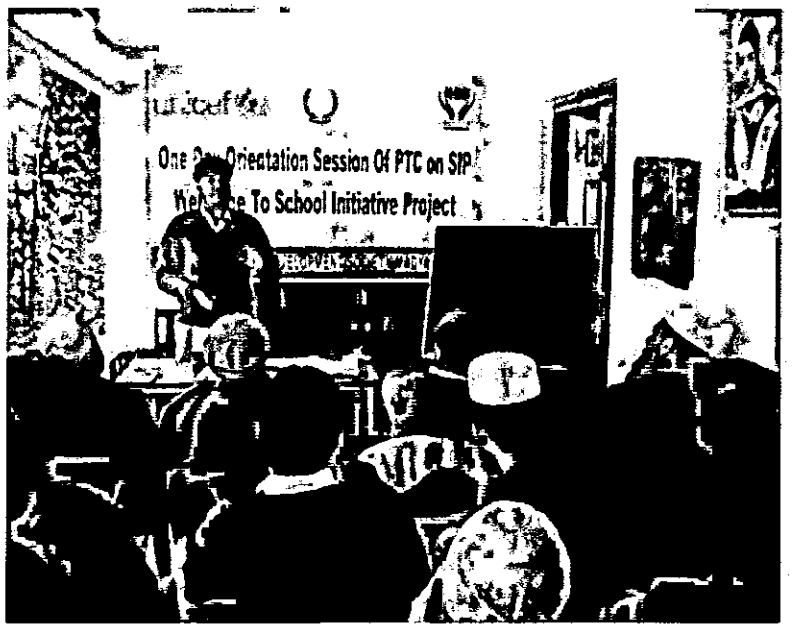
20 Female Teachers have provided to different Government Primary Schools. Rehabilitation work of Partially damaged work is underway. In SEEP Emergency Activities Project SEEP has provided 84 Tents pitched in 25 Govt Schools, 157920 Students Bags, 10000 Note Books, 1236 Plastic Mats, 592 Tables (Wooden & Plastic), 730 Chairs (Wooden & Plastic), 31 Water Coolers, 215 White Boards and 3 Gas Cylinders have been distributed to the School Activities. DSL Connection to EDO E & SE Office, Web Site for EDO E & SE Office, Conference Room Construction and reasonable financial support to EDO E & SE Swat for monitoring of Education Activities.[103]

5.1.2 Welcome to School Initiative Project by HRDS/UNICEF

Human Resource Development Society is the implementing partner of UNICEF in district Swat for welcome to school initiative project since June 2010 in the selected UCs of the district with close coordination and collaboration of elementary and secondary education department of Swat and all other stakeholders. Its aim is to bring all returnee and IDP children especially girls back to school. Till now HRDS has provided distribution of school supplies in 274 schools of District

[103] (SEEP Annual Report 2011)

Swat Union Councils which included school bags, black boards, plastic mats, water coolers, furniture sets, re-opening 9 closed schools with the help of local MPA and EDO, re-enrollment of 535 drop outs and outgoing school children in school, appoint of additional teachers at single teacher schools are amongst the few achievements they done to date.



Master Trainers Elaborating concept of Parents Teachers Council in Welcome to School Initiate Project

Furthermore they have HRDS is planning to Recreational/Extracurricular Activities which will encourage and appreciate the student to provide their inputs, expose their potential. In Recreational Activities various types of competition and games were held and awards were given to the winners. Handicraft competition was held for girls. Salam Teachers Day was observed. One week Enrollment Drive/Mass Campaign was done which success. Teachers Training will be conducted in winter vacations by UNICEF. In School Improvement Plan HRDS has achieved Technical Assessment of 70 schools, got approval 14 schemes from EDO & UNICEF, Civil work is started in 13 schools are in progress, 44 schools are under approval from education department. [104]

[104] (HRDS Annual Report 2011)

5.1.3 Malakand Rehabilitation Programme (MDP) by Islamic Relief

Malakand Rehabilitation Programme was launched to help the returnees rebuild their lives. Variety of activities are in the process of implementation such as; livelihood development, reconstruction & rehabilitation of schools, health care facilities, and water & sanitation schemes. But we will touch the Reconstruction & Rehabilitation of Schools for now. As per Islamic Relief's Schools Interoperability Framework Data they have made operational 21 Tent Schools (8 Female School and 13 Male School) most of them were primary schools with 17, 3 middle schools and one high school. These schools accommodated 4,567 Students including 3,026 Male and 1,541 Female Students who were supported by 100 Teachers. 990 Student Kits were also distributed in different male and female Primary Schools. Numerous Partially and fully damaged schools are also in pipeline to be made operational as soon as possible.

After Rehabilitation, GMS DADARA

Sanitation Workshop with the name of Wash Soft was conducted the Schools and in other activities Speech Competition and hygiene Sessions were conducted as well. [105]

5.1.4 Sarhad Rural Support Programme by KP Government in collaboration with Give2Asia

SRSP launched their Education Programme in district Swat with the return of IDPs to their homes. As per them, SRSP in collaboration with their partners have achieved:

[105] (Malakand Rehabilitation Report by Islamic Relief 2011)

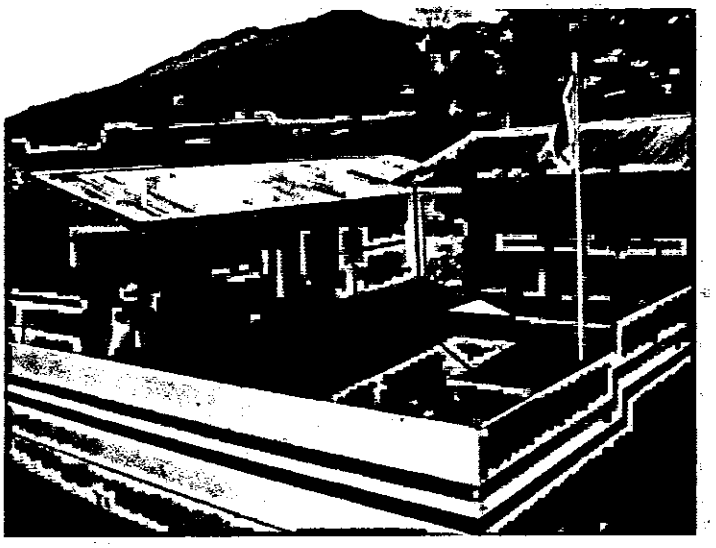
- Rebuilding and Restoring: 61 Government Schools have been rebuilt and rehabilitated under this component, 40 schools in cooperation with PDMA-PaRRSA, Department of Education, GoKP, UKaid (DFID) and ICCO.

- Community Participation of 18 PTC (Parents Teachers Council) with 144 members SRSP's resources, ICCO and Give2Asia has made successful. 58 PTCs have been formed, notified and trained for Community Participation Programme.

- Teachers' Professional Development: 75 women teachers are trained under this programme by Citi Foundation, ICCO and Give2Asia. 195 teachers have been trained under this component. 120 men and women teachers have been trained by UKaid (DFID).

- 25 computer labs are provided as well in to the Schools. SRSP's resources Academic scholarships for 40 students Citi Foundation, School kits Mercy Relief, Psycho-social activities in 63 government schools ICCO and UKaid (DFID)

Their future project focuses on rebuilding 40 government schools i.e. 32 girls and 08 boys schools With the help of pre-fabricated structures which offers both a quick-fix and long-term solution for reinstatement of education in a safe protected environment until the original buildings can be put in place. As its life span is of nearly ten years, the structures take 45 days to be resurrected and therefore, have become an enabling source for return of children to the schools in the shortest possible time. Emerging as cost-effective, time efficient, safer, reliable transitory alternative, the pre-fabricated structures have now been invested in by DFID with Rs. 132 million for 40 government schools in Swat.



Rebuild Tootano Bandai School Swat

This will capitalize on the formation and training of Parent Teacher Councils, Teachers' Training and Psycho-social activities for children in the schools. The project is focusing on community participation through PTC formation and training, enhancing skills of teachers and psycho-social activities for the children returning to schools[106].

5.1.5 EMRE School Bag Distribution by Handicap International

Handicap International has successfully done 10844 enrollments of students in school till now. They have distributed a total of 4000 School Bags i.e. 2000 each to Primary and Middle School Students. [107]

5.1.6 Cadet College Swat by Pakistan Army

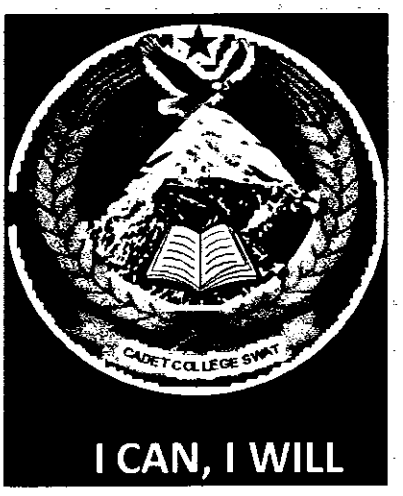
Cadet College Swat, is established directions of CAS, General Ashfaq Pervez Kiyani. It is located at Gulibagh in the beautiful valley of Swat at about 300 kilometers from Islamabad and 181 kilometers from Peshawar. The Government of Khyber Pakhtunkhawa is funding the project.

On 18th of January, 2011 Commander Operation Rah-e-Raast, Major General Ashfaq Nadeem inaugurated the Cadet College. Cadet College is chaired by Major General Javed Iqbal. With the

[106] (SRSP Report, Education Returns to the Valley)

[107] (Handicap International Official Website)

restoration of peace, it was appropriately conceived by the military authorities to develop an area where youth can be nurtured well and guided to explore their destiny in the marvels. Primarily the College aims at preparing the cadets for SSC and HSSC Examinations, affiliated with Board of Intermediate and Secondary Education Swat. In addition, being a residential institution it shall offer a wide range of co-curricular and extracurricular activities, which would instill confidence and leadership qualities in cadets and give them an opportunity to explore and promote their potentials. The training is oriented to prepare the students to excel in whatever profession they intend to pursue.



In the College Emblem, The Wreath symbolizes for State of Pakistan and Agriculture Base, Star is the National Emblem, Falcon is Iqbal's Shaheen, Open Book depicts Education and Falak Sher is the location in Swat. [108]

Inter District Schools Sports Tournament Started on 16th of October, 2011 held by the **Education Department** and ended successfully on 25th of October, 2011. The Players competed in Cricket, Gymnastics, and Physical Training etc. [109]

Sports have always proven it to be a healer for the victimized society and District Swat surely requires more Sporting Events for the Psychiatric Rehabilitation of the locals.

But Issues still remain

[108] (Cadet College Swat Official Website)

[109] (Zama Swat 16, October, 2011)

In Mingora, Teachers protested for the delaying of Son Quota, GP Fund and lack of Service Structure. As per them, because of these delays most of Swat Schools are without the teachers which is quite alarming situation for the Students. [110]

The above mentioned NGOs would be doing a great job but the War hit areas take a long time to heal. Few of the issues that were pointed out by the EDO of District Swat Sultan Mehmood Mian in the Meeting with Government Official and the International Donors on 18th of August, 2011 are as follows:

- Majority of Primary Schools have only two rooms. There are few Middle and High Schools that have no rooms at all. Rooms should be added.
- In Primary Schools the enrolment is very high and due to less space it is difficult to accommodate all the pupils. So it is suggested to provide carpets rather than furniture to cater more students until the space to make more classes is not available.
- Some of the Schools have insufficient facilities like Washrooms, water supply, boundary wall, electricity. It is requested that missing facilities be provided in schools.
- Non availability of Feeder Teachers which are required for Far Flung Areas.

Then there are issues that relate to lack of trained teachers and supplies. [111]

The above mentioned points are just to show the level of the difficulty of situations in rehabilitation of War hit Area despite the fact that 16 NGOs are working on Education Sector in District Swat alone. [112]

5.2 Community Restoration by Psychiatric Rehabilitation

Psychiatric rehabilitation or Psychosocial Rehabilitation promotes recovery, full community integration and improved quality of life for persons who have been diagnosed with any mental health condition that seriously impairs their ability to lead meaningful lives. Psychiatric

[110] (ZamaSwat 24 Feb, 2012)

[111] (Swat Education Board)

[112] (PaRRSA Offical Website)

rehabilitation services are collaborative, person directed and individualized. These services are an essential element of the health care and human services spectrum, and should be evidence-based. They focus on helping individuals develop skills and access resources needed to increase their capacity to be successful and satisfied in the living, working, learning, and social environments of their choice. In case of War or Civil War struck areas the Psychiatric Rehabilitation encompasses all the activities that are being done to bring that War torn society back to normal.

5.2.1 Sports for Peace Project by Swat Youth Front

Sports can be used as an effective tool and a strong unifying factor in the process of conflict transformation, peace building and development, restoration of interaction and communication and emotional and social rehabilitation of traumatized community by providing sports goods to the youth players of the area with special focus on the most sensitized and militancy affected areas of Swat. Sports is a useful tool in discussing and solving the sensitive issues of the people. Sports is useful means of channeling energies away from aggression or self-destruction in soothing way. Sports can also be used as a practical means to communicate message of peace and help find nonviolent solutions to problems. And Sports provide healthy Alternatives to harmful Actions such as drug abuse, militancy and crime. Keeping in view the Traumatizing situation in District Swat SYF proposed a project "Sports for Peace "to Public Affairs Section US Consulate Peshawar. United States of America acting through the Public Affairs Section of the US Embassy in Islamabad awarded a grant of 12000US$ to SYF with Grant No. SPK33008GR060 to encourage initiatives where sport can assist in creating a platform for post-conflict, peace-building and development dialogue by facilitating and equipping 3360 player of 330 teams with sports goods and establishing a network of them. For now three games were given the heed, out of 330 teams, 150 Cricket Teams received the Sports Goods, 60 Football Teams and 120 Volleyball Teams.

Miscellaneous Pictures of events and tournaments held under SYF

Eight Mega Events for the Distribution of Sports Goods was organized in the different localities of District Swat. 38,000 War torn viewers enjoyed the games of the players. This step once again restored and promoted the sports activities in the areas. The teams who are give the sports goods have been listed and the same have been shared with all teams associations, players and District Sports Office. Renaissance of such Sports Promotional and Restoration Steps did provided a calm atmosphere after a long time. And now the Sports Teams' players' Network under the Sports for Peace Project has mobilized all their resources for promotion of Sports of Peace and Development in the region on sustainable basis.

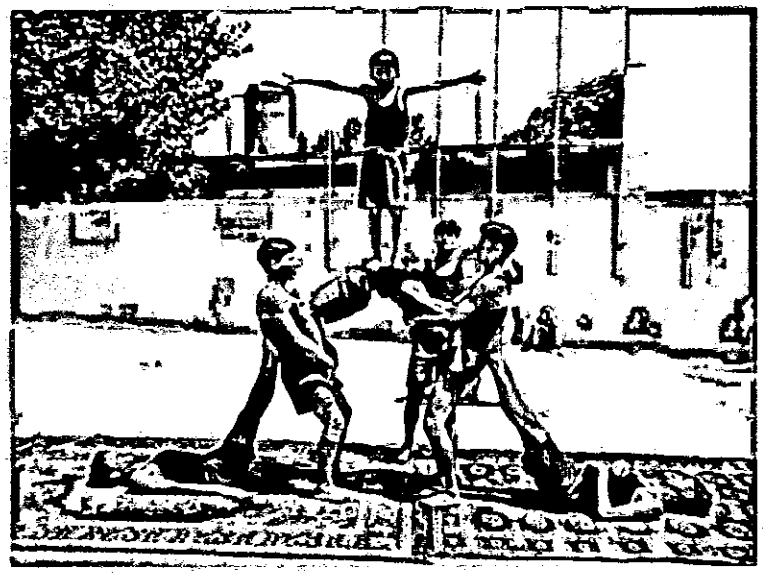
Furthermore, SYF has proposed another project with the Primary Objective of providing 900 more teams with Sports Good and it will directly involve 8400 player of of Cricket, Foot Ball and Volley Ball and more than 90000 indirect beneficiaries (spectators) on daily basis in healthy and peaceful activities. Renovation of War Torn Playgrounds is another target that can provide calmness to the surrounding locals.[113]

[113] (Report on Sports for Peace Project District Swat 2011)

5.2.2 Spirit of Swat by UNDP/PDMA-PaRRSA

After more than two years of the crisis, life is returning towards normalcy and various initiatives by PDMA-PaRRSA to engage the youth of the area in healthy activities and thus promoting the message of peace and harmony. To simulate and catalyze this, an event titled Amman Festival was arranged last year 2009 by PDMA-PaRRSA. As a squeal to this hugely successful festival, an extravaganza spread over 45 days celebrating the resilience and ethos of the people of Swat was held, called "SPIRIT OF SWAT" 19th of June, 2011. The festival included a wide spectrum of events to attract people from all spheres of life. This gala included various sports, cultural, arts and other recreational activities.

The 'Spirit of Swat' sports gala was packed with exciting athleticism and entertainment including Hokey, Squash, Basket Ball, Industrial Exhibition, Body Building, Jalla Competition, Cycling, Golf, Volley Ball, Foot Ball, Cricket, Badminton, Tug of War, Kabadi, Boxing, Table Tennis, Net Ball, Taekwondo, Musical Concerts, Fire Works, Car Rally, Motor Bike Dirt Track Show, River Rafting, Marathon, Camp Tracking, Power & Para Hand Gliding. At the end of the festival a Peace Walk was arranged to promote social cohesion. The "SPIRIT OF SWAT" can surely be termed a roaring success. The Fundamental goal of Spirit of Swat was to heal the fissures created by the insurgency in Swat in the particular and the Malakand Division in general, and put it back on the path to a lasting peace and prosperity.



Kids Performing during Spirit of Swat Sports Gala

The festival also had an overall contribution to the community, i.e. to generate income, jobs, and meet wider economic objectives which have resulted in a profound impact on the local economy. Approximately 70,000 people visited the various events, organized under "SPIRIT OF SWAT" festival, Over 2000 sports persons participated. [114]

5.2.3 Inspire by IDEA

To promote peace through recreational activities and to instill above mentioned qualities into the lives of student, sport events at school level have been introduced in the targeted schools i.e. Cricket, football, Race, etc. Sport kits also have been provided by IDEA-INSPIRE in targeted schools. In this context a football match was arranged between GBPS Islampur and GBPS Gulligram on 20th October 2011.

Students and school staff from both the schools enthusiastically participated and attended the event by arranging their own conveyance. This was the first grand level sport event held in the area. Students were extremely excited as this was the first time any organization has arranged any match in the area between the two schools. Not only student, parents, PTC members and community members also visited the event and encouraged their teams. After giving a strong fight to GBPS Islampur, GBPS Gulligram won the match and results were open heartedly accepted by both the teams which showed a sign of great team spirit.[115].

5.2.4 Empowerment of Persons with Disabilities (PWD) by FWAP

For the Psychiatric Rehabilitation Friends Welfare Association Pakistan initiated the Community Development Project. Under this project, the organization follows a right based approach of making an effort to uplift the most vulnerable groups of the society and by doing so rehabilitating the social infrastructure. And this can only be done by advocating for the rights of vulnerable groups in the society and putting the vulnerable group on the right path with the positive spirit. Up till now, the organization has registered two PWD's Forums under Society Act 1860 to raise the

[114] (WADAN Annual Report January, 2012)

[115] (The Humanitarian Third Edition, October 2011)

voice in favor of PWDs. The capacities of Thirty five members of PWDs Forum were built on Forum management through Trainings and workshops. Five Hundred and Sixty Members participated in the Twenty Awareness meeting conducted in different UCs of District Swat. Three Hundred Awareness messages have been made on air on FM Radio. The capacities of three hundred and twenty eight community members was built on understanding disabilities, perceptions, models of disability and socio economic development.

This is Umar Shahzad who got paralyzed and accepted this as his fate. Living lonely at his home all the time with no ambitions to progress in his life was this dejected PWD. With Friends Welfare Pakistan efforts now he wants to work for the Disabled and is the member of General Body of PWD Forum, Network for Disabled and Development Organization (NDDO).

The awareness of four hundred and ten community members is built about the rights of PWDs in community members is built Four awareness walks conducted in different UCs of Swat District. Capacity of Twenty one Teachers/PTC members of six model schools is built on Inclusive Learning Friendly Environment(ILFE).[116]

5.2.5 Sports Day by EPS

On 29th of February, 2012 **Environmental Protection Society** arranged a Sports Day for the Disabled Citizens of District Swat. The event was held in D-Kabal Ground. The event included Cricket, Volleyball, Badminton and other games. Special Players from UC Koza Bandai, Totanu Bandai and Kanju took part in the eventswith Great Spirit and Enthusiasm. In the end, the prizes were distributed in the players. [117]

5.3 Livelihood

Earning Livelihood means Earn to securing the necessities of Life. Agriculture is the main sources of economy. The Valley of District Swat is very fertile for farming. Fruits are grown in all areas Swat District and are the source of income. Live Stocks, Buffalos and cows are the main source of milk. Sheep and Goats are reared in large number in district Swat. Forests are also the sources of income. Fruits and honey are the main products of Swat. Silk Industry is the oldest industry of this area. Hotels, Plastic, Rubber, Marble, China clay industries are also included in

[116] (FASP Annual Report, 2009)

[117] (Zama Swat 29th of February, 2012)

sources of income. Let us take a look at the progress made in said areas. Other occupations include Trade, Government Services, Private Services, Hotel Services, Transport Services, Hunting, Fishing, Handicraft and Teaching to name some.

Especially Civil War Struck areas require special heed to bring the Livelihood of the people back to them. Multiple NGOs have taken this challenge to rehabilitate the Livelihood of the people of Swat, efforts of few are mentioned below:

5.3.1 Livelihood Improvement Program in Swat (LIPS) by IDEA

Their main objective is to rehabilitate the sustainable livestock and poultry for improved livelihood in targeted areas and also to restore and improve agricultural conditions for marginalized conflict/flood affected communities of Swat. Two Union Councils of Swat, Gwalaray and Barthana were selected for this Project.

Their targeted beneficiaries are farmers, who are affected from the Militancy, Flood and most deserving poor farmers, affected women headed households, widows, vulnerable and capacity building of the farmers' organization. Baseline assessment regarding collection of information and selection of flood affected villages of target UC's, is conducted. The baseline identified the real beneficiaries, who were obligatory for a successful and sustainable development. In second step IDEA formed Community Based Organizations to nurture the target Locals.

Training on improved agricultural practices (Garlic & Onion) is given to the selected farmers. Baseline Assessment was further scrutinized for specific trainings on specific agricultural and livelihood sectors, i.e. Trainings on Garlic and Onion. Seeds and Fertilizer for vegetable were also distributed among the beneficiaries. One of the most important components of the project was to identify the most deserving widows, to be awarded with Goats, which in numbers were 100. BOQs/Approval for the rehabilitation of Irrigational Channels through Cash for Work are prepared. The out-come of the project is a sustainable development in livelihood sector and the farmers who have got rich capacity building regarding farming. The goats which are given to the beneficiaries will give birth to more kids and same like it which will appreciate Micro Financing.[118]

5.3.2 Miscellaneous Livelihood Projects by ActionAid Pakistan & Literate Masses

Their first project was Restoration of Agriculture, and Enhancing Livelihood opportunities for affected communities especially women. This project was funded by Italian Embassy and was target areas were 15 villages of Union Councils of Bisheegram and Mankial of District Swat. The project duration was six months and project was worth Rs 25 Milhon. Amongst the points focused was the promotion of Agriculture and Livestock, capacity building of local community etc.

In Partnership of GTZ, Literate Masses and ActionAid have implemented a project of Road Rehabilitation Project on **cash for work program** consuming 10000 man days. Duration of the project is fourh months and total budget is 4.3 Million. In partnership with Literate Masses, ActionAid Pakistan and CBHA, 722 families have been supported by provision of NFIs and Food items. Each Package included Hygiene Kit, Household Kit, Kitchen Set and food items. The targeted beneficiaries was different UCs of Tehsil Behrain,

[118] (The Humanitarian, October 2011 Edition by IDEA).

and Tehsil Khwazakhela and Tehsil Kabal. Besides this, three camps of Madyan were also provided for humanitarian assistance in the same shape. Duration of the project is one month and total budget is Rs. 8.5 Million.

Project **Early Livelihood Recovery Support to Conflict Affected People of Khyber Pakhtunkhawa** was carried out in partnership with ActionAid Pakistan and ECHO. Literate Masses was the first Organization to start the work in the most remote and hard villages of UC Bar Thana, Gowalarai, Chuprial, Gwalerai, Sakhra. ActionAid focused their activities on improving income level of up to 1000 beneficiaries' households as a result of livelihood support. Later on 2000 beneficiary households were covered for basic needs and increased capacity of up to 1600 targeted beneficiaries were for support livelihood. Duration of the project was six months and total budget was Rs. 22.8 Million. [119]

5.3.3 Emergency Response by CMDO

Community Motivation and Development Organization has worked proactively in emergencies single handedly and in partnership with different Relief agencies.

For first, **CMDO distributed food** amongst thousands of families in district Swat. 3425 Transitional Shelters were supplied by CMDO for the affectees who lost their homes either due to conflict or July 2010 Devastating Floods. affectees of 2009 IDP Crises were from Swat Valley and were not accustomed to living in the extreme hot and humid climate of the camps in Peshawar District. To provide cover for refugee tents against heat and sun in the summer and

[119] (Haqooq Parchaar, April 2010)

create some useful space besides the tent for cooking and for children to play shade nets were erected for 3500 families in Jalozai camp.

To enhance the livelihood and skill development training facilities in masonry, electrification, plumbing, tailoring, carpentry and embroidery were established. One week training course was designed to teach the use of tools and its safety precaution. 6443 adult males and females benefited from the program. The Skill Development Council awarded certificates to participants in recognition to the skills they have learnt. [120]

5.3.4 Livelihood Restoration for Conflict-Affected Families of Swat by CWSP

Church World Service initiated the project to improve food security and minimize vulnerabilities of targeted conflict-affected families of Swat. Project Activities focused on Livelihoods restoration and capacity building to reduce the risks and losses causes by Natural and Man Made Disasters. As a result of this project, 1500 people have received vouchers to purchase agricultural inputs and 500 landless laborers have received cash for work opportunities. Provisions of agriculture inputs for the conflict affected farmers and their training on integrated crop management. Priority for the cash grants and vouchers is given to Women-headed Households to increase their control over economic resources. [121]

5.3.5 Support to Sustainable Livelihood & Local Economic Recovery by UNDP

Sustainable Development through Peace Building, Governance and Economic Recovery in Khyber Pakhtunkhawa Programme was designed with a twofold objective; from one end it was to support the sustainable return of IDPs through targeted early recovery. Amongst the pillars Sustainable Livelihood held an important role in Local Socio Economic Recovery.

For first, Skills and livelihood development trainings were imparted to men and women to equip them with greater income generation skills. These include the following;

- Men trained on the trades of electrician, plumbing, auto mechanic, masonry, welding etc.
- Women trained on candle making and beehive keeping
- Women provided with sewing machines and beehives to initiate their own business

[120] (CMDO Annual Report, 2010)

[121] (www.cspwa.org)

Key Achievements of this UNDP Project in collaboration with ParSSA were very prominent.

Seventy Five unskilled and jobless youth of Khwaza Khela and Kabal, Swat made 'self-employed' through provision of 45-days skill development trainings in Five selected trades (electrician, plumbing, welding, auto mechanic and masonry) during November 8, 2010 and December 23, 2010. Two Hundred and Twenty vulnerable individuals, including Twenty Five women fully equipped with necessary skills for running and sustaining a microenterprise through 3-day Basic Enterprise Development Training. Twenty Five Women embarked upon new microenterprise initiatives through provision of cash grant. Eleven Women were 'self-employed' under 'poultry husbandry' after provision of 5-days training and provision of poultry units in Swat and Buner. Two Hundred and Two individuals 'self-employed' in home-based 'poultry rearing' business after provision of improved breed poultry units in Swat & Buner. Ten individuals running poultry business after being trained through 3-day poultry extension workers training and equipped through provision of 'tool kits'. [122]

USAID in partnership with Lasoona has started its activities to advertise the Handicraft work of District Swat. A Seminar was also arranged by Women Chamber of Commerce and Industry Peshawar at Shahi Mehmaan Khanna(شاہی مہمان خانہ) in which Handicraft commodities of Swat People were displayed. [123]

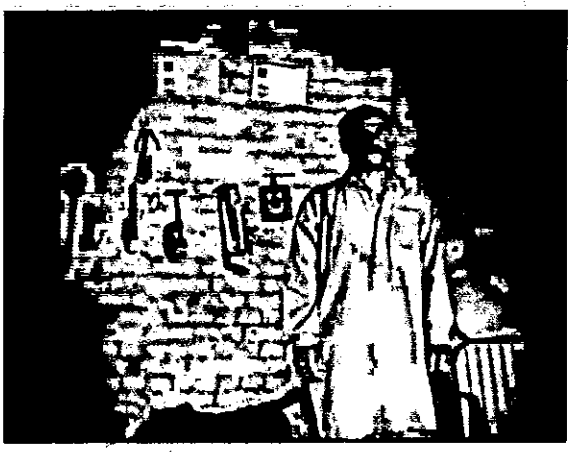
Now lets us look at some success stories motivated by Governmental and UNDP efforts for rehabilitation of Livelihood[124]

[122] (UNDP 2010 Annual Report)

[123] (ZamaSwat 20 Feb,2012)

[124] .(Courtesy UNDP Livelihood Booklet)

After the Masonry skills training, not only have my wages increased but I have also gone from being called Madoor to being Called "Ustad J". Sardar Alam, Age 20



"After the Plumbing Training, I have been able to piece my family together, and to pay for my nephew's education and mother's treatment". Mian Saeed Wahab

Years passed by, since the restoration of State Write in the Malakand Division. Despite the progress made far by the Federal/Provincial Government and the NGOs a lot remains to be done. Rehabilitation of Livelihood will require continuous and coordinated efforts from the local communities, Government, donors and civil society to make it a success as a whole.

Due to worst WAPDA Outages the Silk Industry in Swat is about to collapse. Many of the employees related to this industry in Swat have no work. Despite the promises of Minister for Water & Power Naveed Qamar, no benefits have been given to Swat Silk Industry.[125].

5.4 Reconstruction of Swat

Harsh Winter made the life more difficult for the people who are living in the damaged houses. The Damage and Needs Assessment (DNA) report by the provincial government has estimated the Swat conflict inflicted some US$860 million in losses. That is what will be required to repair the social sectors and physical infrastructure, including housing, education and health, transport, water and sanitation, environment and governance. And the completion of this Reconstruction will depend on the International Community, Federal and Provincial Government.[126].

[125] (ZamaSwat Feb 9, 2012)

[126] (Central Asia Online, 23-12-2009)

5.4.1 Reconstruction of Houses by PDMA-PaRRSA

The Preliminary Damage and Need Assessment Report is Prepared by Asia Bank and World Bank for the Government of Pakistan in November, 2009. As per Report in District Swat 3,738 Houses were completely damaged and 4,387 Houses were partially damaged.

1. PDMA followed the approach of **Uniform Assistance Package** in which Rs. 400,000 will provided for completely damaged House and Rs. 160,000 will be provided for partially damaged House. . These amounts were calculated on the basis of a 575 square feet covered area of a core unit consisting of two rooms, a bathroom, and a kitchen, using a rate of approximately Rs.700 per square foot. A Uniform Assistance Package is proposed to be provided to all affected homeowners, irrespective of extent of individual damages. This will ensure a sense of equity amongst the affected population, and help minimize the risk of exacerbating tensions and rivalries across competing beneficiaries from different ethnicities, communities, and tribes.

2. **Building-Back-Better (BBB)** was also kept in sight. In the case of private housing, the proposed BBB entails two types of improvements in quality: (i) the replacement of all katcha houses with pucca construction; and (ii) the replacement of all destroyed houses with multi-hazard resistant houses, considering that the crisis-affected region falls within a high-seismic risk zone as well as is vulnerable to a variety of other natural hazards.

3. **Ensuring Crisis/Conflict-Sensitive Recovery:** The core principle of conflict-sensitive development has been adapted for housing sector recovery, by proposing assistance for a replacement unit that corresponds closely with the average pre-crisis housing unit size. The proposed housing reconstruction package offered to crisis-affected households would thus enable most beneficiaries to reconstruct back to the original size of the lost asset, while for many others who had significantly smaller than average houses or had katcha construction; the package would offer an opportunity for improved and safer living standards.

4. **Homeowner-driven Reconstruction:** The proposed mechanism for government assistance is a cash grant-based, homeowner-driven model, whereby homeowners are made in-charge of reconstructing or repairing their houses, facilitated through provision

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4. **Homeowner-driven Reconstruction:** The proposed mechanism for government assistance is a cash grant-based, homeowner-driven model, whereby homeowners are made in-charge of reconstructing or repairing their houses, facilitated through provision

of cash support and technical assistance. This approach would allow for responsiveness to individual preferences and would maximize household ownership thereby keeping expectations and demands from the government realistic. Homeowners would be free to choose type of construction, architectural layouts, and the preferred size of the core housing units to be reconstructed. Simultaneously it would mobilize self-standing reconstruction and rehabilitation efforts, thereby not burdening government administrative capacity with a large volume of contract management. Finally, such an approach would inculcate a culture of safer and hazard resistant housing reconstruction in this multi hazard prone zone, by imparting the necessary knowledge to homeowners and skills to the local artisans[127].

5.4.2 Emergency Response by Tameer-e-Khalq Foundation

TKF has developed expertise in Disaster Response & Management and preparedness. The organization specializes in relief and rehabilitation operations. The Emergency Response Section at TKF maintains a stockpile of relief items like NFIs and emergency tool kits at the warehouses in Quetta and Mardan. Tameer-e-Khalq was not behind in the War hit Swat provided 40 Hand pumps, 8 DWSS, 1 Sewege System which costed Thirty Million Rupees. Moreover,407 Transitional Shelters were provided to the affected family to Swat And Shangla. This was done in collaboration with Qatar Red Crescent. In collaboration with UN-Habitat Construction of 175 Shelters, Latrines and Kitchens were constructed. [128]

5.4.3 Reconstruction Malakand by Pakistan Army

Pakistan Army is spearheading reconstruction and rehabilitation schemes in the militancy-torn Malakand Division and has so far completed 543 projects worth Rs.615.618 million and work on 1002 more was in progress under the supervision of the military in the region. The military initiated the rehabilitation projects in the area after end of the operation. In first instance, the services of electricity and telephone and roads & bridges of the communication sector were restored.

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[127] (PaRRSA at a glance 2012)

[128] (tameerekhalaq.org)

In first phase of the restoration of the services sector both civil administration and other stakeholders were also involved. Amongst the damaged schools, work on One Hundred and Seventy has been completed and on Seventeen others was in progress. Seventy mosques that received collateral damages during the operation have been reconstructed and work on Seven other was in progress. Two Hundred and Five schools were reconstructed with the Parents Teachers Fund and all partially damaged schools have been revived. Amongst the completely destroyed schools 7 had been constructed by the Pakistan Army from its own fund while 23 other were reconstructed under the auspices of Army Engineering. A non-governmental organization, Islamic Relief has constructed 4 schools and a dispensary.

Brigadier Tariq and Canadian High Commissioner inaugurate a bridge at Cheel Shagai.

In district roads, the military has repaired Three Hundred kilometer roads while work on another 19.5 kilometer was in progress and 38 bridges/culverts have been completed. Three bridges, have been constructed to reopen main supply road. Two gymnasiums have also been constructed for promotion of healthy activities amongst the youth. In drinking water supply, 234 schemes had already been completed and work on 97 other was in progress. In establishment of community parks and provision of sports activities 4 projects have been completed and 3 other were in progress.

Twenty one electricity schemes have been completed and 18 other were in progress. Civil administration has also been involved in the construction projects to restore their confidence while the supervision of army will bring transparency in it.

Donors, Colonel Aftab said are also satisfied with the work of Pakistan Army while civil administration is also being taken on board for its capacity building.[129].

There are a lot of sectors on which the Federal and Provincial Government are doing their efforts in collaboration with the NGOs. There was Protest by Swat people for the nonpayment of reconstruction funds by the Government. As per them, PARSA and District Administration are delaying their payments for no reason[130]

In the City of Mingora, Department of Sui Gas has started Digging on places, which creates Traffic Jams on Nishat Chowk, GT Road, New Road and other places. The rainfall makes that area very muddy. The locals have called upon the concerned department many times to speed up the work and clear the mud, but no response. People of these areas are very irritated and want Sui Gas to speed up the work. [131]

5.5 Tourism

[129] (Pakistan Times, 7th March, 2012)

[130] .(Zama Swat 23 Feb, 2012)

[131] (Zama Swat 14 Feb, 2012)

With its roaring rivers, waterfalls, meandering streams, glacier fed lakes, pine forests, alpine meadows, snow covered peaks of Mankial and Flaksair, fruit laden orchards, lush green fields, flower filled mountain slopes, and above all the friendly Swati people who are famous for their traditional hospitality, Swat is without doubt one of the most beautiful tourist destinations in the northern valleys of Pakistan.

Blue Lake - Upper Swat

The beautiful valley of Swat, popularly known as the Switzerland of the East, is a holiday-maker's delight and a hallmark of magnificent scenic beauty and a rich historical past.

The tourism industry was the worst affected by the militancy and after that the Military Operation as most of the hotels in the District Swat were either completely damaged or partially damaged. Moreover, due to the security threats there were no tourists. One of the main occupations of Swat People is Tourism or linked with Tourism. Now efforts are being made to revive the Tourism industry in War hit District.[132]

5.5.1 SKI Gala by PDMA/PaRRSA

During the militancy a 72-room hotel owned by the state-run Pakistan Tourism Development Corporation and its only chair-lift was destroyed. With the end of crisis PDMA-PaRRSA in

[132] (tourswat.com)

collaboration with UNDP under their peace building and social cohesion interventions, arranged the "Peace Ski Gala 2011" to promote peace through winter sports. Eight teams participated in the competition which was attended by hundreds of Skiing enthusiasts and tourists. Yasir Khan,

an amateur skier said "I have been skiing for a long time. The best time to come here is during the winter when it snows as skiers from all over Pakistan and from France, Austria and Japan come here," he said.

Sareer Jan, a local grocery shop owner said that skiing sport and restoration of Malam Jabba skiing resort has increased his sales in winters as well.[133]

5.5.2 Sheen Swat Zama Watan(شین سوات زما وطن) by Pakistan Army

Pakistan Army started Plantation Movement naming Sheen Swat Zama Watan(شین سوات زما وطن). The plantation movement has started from 1st of March, 2012 and will end on 30th of April, 2012. The motive of this movement is to involve the Local Communities especially School Kids to plant the trees and make Swat Beautiful. [134]

[133] (Wadan January, 2012)

[134] (ZamaSwat 2 March, 2012)

5.5.3 Reconstruction of Swat Museum by Italy

The Base Stone Ceremony Reconstruction of Swat Museum was inaugurated on 8th of February, 2012. Due to 2005 Earthquake and 2009 Conflict the Museum was badly damaged. After normalcy in the area, Italian Government took the initiative to re construct the Swat Museum. Swat Museum will also be beneficial for the tourism[135]

5.5.4 Snow Rallies by Frontier Four by Four Club

First Jeep Rally naming Snow Cross Rally was held on 5th February, 2012 in Kalam. Fifteen Drivers from Islamabad and Six Local Drivers participated in this competition. Drivers competed each on snowy paths of Shahi Ghot(شاہی گوٹ). [136]

Second Jeep Rally naming Snow Jeep Rally was held on 30th of January, 2012 in Malam Jabba. Eighteen Teams from all over Pakistan participated in the rally. [137]

5.6 International Support for the Rehabilitation of Swat

The US will provide a $36 million grant for reconstruction and rehabilitation works to help Swat residents, who suffered heavily due to the militant attacks. US Ambassador Anne W Patterson and NWFP Chief Minister Ameer Haider Hoti signed an agreement at Circuit House on Thursday, officials told Daily Times. The grant will be spent on drinking water, health and education. About $20 million would be used for education, while $12 million for health, $3 million for sanitation and $1 million for the provision of clean drinking water. [138]

Turkish Ambassador Babur Hizlan also visited the affected area and brought three truckloads of relief goods for the Swat people. Talking to senior civil and military officials, he said Turkey "stands by Pakistan" and would help rebuild Swat. [139]

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[135] .(ZamaSwat 8 Feb, 2012)

[136] (ZamaSwat 6 Feb, 2012)

[137] (ZamaSwat 31 Jan, 2012)

[138] (Daily times, 22 December 2009)

[139] (Daily Times, 22 Dec 2009)

The Saudi government has announced to provide huge funds for repair of roads, fer-ries and drainage channels in Swat region as part of its efforts to improve and rehabilitate infrastructure facilities in the area. The memorandum of understanding (MOU) has been signed between the Saudi Development Fund (SDF) and the United Nations Development Programme (UNDP), under which the Kingdom of Saudi Arabia will provide a grant of 5,397,300 dollars to the UNDP for repairing roads, ferries and drainage channels in Khyber Pakhtunkhawa province (Swat region) and help in the rehabilitation process in the affected areas of the province.[140].

As per the current situation, Pakistan Army has started handing over the Administrative Authorities to Civil and Local Police and has started returning to their units. As per DCO Swat, on all the checkpoints now Police is deployed where Army was deployed in the past.[141]

[140] (The NEWS May 5, 2011)

[141] (ZamaSwat 2 March, 2012)

Chapter 6

Conclusion

Mata Tehsil of Swat District remains hub of Tehrek e Taliban Pakistan for many years and hence faces a major offensive operation from the security forces of Pakistan to clear the area from the militants. Due to this operation intense fight is been conducted in the area between the security forces and the militants to take control of the area. As a result of which major destruction occurred in the area and local population also suffered a lot. Current study is conducted in order to assess the damage done to the social lives of the local population and damage done to local environment. For this purpose number of field visits were conducted in the area and two sampling campaigns were done in wet and dry seasons. Surface and Ground water samples were collected in dry and wet seasons from the affected villages in order to determine the damage done to water quality due to the conflict. Soil samples were collected from six different villages in the Mata district of Swat Pakistan. Villages named as Kurray, Behi, Shawar, Deth pani, Shokh dara, Aghal were selected on the basis of access in the area due to security situation of the Mata district which was a former strong hold of the Tehrik-e-Taliban Pakistan. Six different impact points of bombing were selected which were still undisturbed by the local residence. Total of 270 questioners were also filled on the basis of 94% confidence level and 6 % error from the six selected villages named as namely Kurray, Behi, Shawar, Deth pani, Shokh dara, Aghal.

The negative impacts of military operation on the social lives of local residents were very much evident from the current study. Local residents of Mata Tehsil of Swat District face serious socioeconomic problems after the military operation. Migration is one big phenomenon that on one side save many lives but on other side creates many problems during their migration period in face of health, shelter, food/water shortage and other problems. These problems seem to continue after their return to native land because of damaged infrastructure, water and food shortage and serious economic problems. Situation is Mata was much more safer than it was during Taliban period but local

residents still want army to leave their area very much due to their behavior and hostile environment of the area. There were no reports of any outbreak of diseases during or after the military operation but still children and elders face some behavioral changes like harassment. Environment has also paid its price in term of burned forest and decrease in local wild life but overall the water and soil quality is not been disturbed and no traces of TNT were found in the soil and water. This study was conducted nearly after two years of seize fire in the area and it seems that nature has itself clean the environment or may be the impacts of 2010 flood in Swat covers the adverse impacts of conflict in Mata (Swat).

- No adverse impacts were observed in surface and ground water samples from the impacted area as given in test reports..
- No adverse impacts were observed in surface and sub-surface soil samples from the impacted area As result of test survey.
- Trinitrotoluene (TNT) was not detected in any of water and soil samples from the point zones. As tested the samples ,report is attached .
- Adverse social and environmental impacts were observed from the questioner survey.
- Local residents are not comfortable with the army settlement in the area and require an immediate evacuation of the army from the local area.

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SOCIAL AND ENVIROMENTAL IMPACTS OF CONFLECTS IN SWAT REGION

QUESTIONNAIRE PROFORMA

Demographic Information

Interviewer: Date:

Respondent Name: Gender:

UC: Area:

Family Members: Profession:

PRE CONFLECT INFORMATION

Economic Data

Income Sources: Agriculture Enterprise Employment Property Other

If other, please specify:

Agriculture

Total Land Holding:

Cultivated Land:

Non Cultivated:

Reason for Non Cultivated:

Crops: Wheat Maize Sugar cane Tobacco Vegetables Orchards Animal Husbandry Other

If other, please specify:

Area under Crop, Production and and Income

Crop	Area Under Crop	Production/ Season (mounds)	Income/ Season
Wheat			
Maize			

Sugarcane			
Tobacco			
Vegetables			
Orchards			
Animals			
Other			

Enterprise:

Type of Enterprise:

Land/ Infrastructure Under Enterprise:

Income/ day/ month (in Rs):

Employment

Type of Employment: Government Private Others

Others, please specify:

Income/ day/ month (in Rs):

Property

Type of Property:

Area covered:

Type of Contract: Daily: Monthly Seasonal Annual Others

Others please specify:

Income/ day/ month/ season/ annum:

SOURCE DAMAGES DURING WAR

Type of Damages to Agriculture:

Crops Damaged

Quantity of Land Lost

Quantity of Land Desertification

Animals affected

People migrated

Type of Damages to Enterprise

Land Lost

Infrastructure Damaged:

Type of Damage: Partially Completely

Affected Employment:

Please specify

Damages to Property

Quantity of Land Lost:

Number of Houses/ settlements damaged

Type of Damage: Partially Completely

POST WAR INFORMATION

Economic Data

Income Sources: Agriculture Enterprise Employment Property Other

If other, please specify:

Agriculture

Total Land Holding:

Cultivated Land:

Non Cultivated:

Reason for Non Cultivated:

Crops: Wheat Maize Sugar cane Tobacco Vegetables Orchards Animal Husbandry Other

If other, please specify:

Area under Crop, Production and and Income

Crop	Area Under Crop	Production/ Season (mounds)	Income/ Season
Wheat			
Maize			
Sugarcane			
Tobacco			
Vegetables			
Orchards			
Animals			
Other			

Enterprise

Type of Enterprise:

Land/ Infrastructure Under Enterprise:

Income/ day/ month (in Rs):

Employment

Type of Employment: Government Private

Others, please specify:

Income/ day/ month (in Rs):

Property

Type of Property:

Area covered:

Type of Contract: Daily: Monthly Seasonal Annual Others

Others please specify:

Income/ day/ month/ season/ annum:

Expenditure Details (Per month)	**Pre war**	**Post war**
Utilities		
Agriculture		

Enterprise		
Property		
Education		
Health		
Recreation		

Expenditure on utilities

How much percentage of total income would be spent on household utilities including groceries, bills other etc

Before War: 25% 50% 75% 100%

After War: 25% 50% 75% 100%

Education

Before War

How many children/ individuals would go to school/ college/ university regularly?

How many children/ individuals would not go to school/ college/ university regularly?

Reasons for not attending

Spending per month on education: 25% 50% 75% 100%

After War

How many children/ individuals would go to school/ college/ university regularly?

How many children/ individuals would not go to school/ college/ university regularly?

Reasons for not attending

Spending per month on education: 25% 50% 75% 100%

Health

Before War

Provisions/ Facilities available to inhabitants (pl specify)

Reasons generally visited for:

Spending per month on health: 25% 50% 75% 100%

After War

Provisions/ Facilities available to inhabitants (pl specify)

Reasons generally visited for:

Spending per month on health: 25% 50% 75% 100%

Recreations explain

Before War

Recreation facilities/ provisions available (Pl specify)

Recreation generally done (Pl specify)

Reasons for not utilizing provisions/ facilities (Pl specify)

Spending per month on health: 25% 50% 75% 100%

After War

Recreation facllities/ provisions available (Pl specify)

Recreation generally done (Pl specify)

Reasons for not utilizing provisions/ facilities (Pl specify)

Spending per month on health: 25% 50% 75% 100%