Chapter–III
Review of Literature
The water is an essential source for life of the entire creatures. Two thirds of our planet is covered by 97% of sea water, while 2% percent is locked up in the polar icecaps and 0.69% water is accessible for human use only (Shaban & Sharma, 2007). The politics on the water has become more controversial in the present scenario especially in India where the burgeoning population is putting more and more pressure on the existing resources in general and during the planning of new development project such as construction of large dams for hydroelectric generation. For judicious exploitation of water, the state and central governments are framing its policies so as to cater the need of the native people. The formation of mega dams across the world although have played a key role in the development, yet has its social and psychological ramifications (Sood, 2011; Bagchi, 2013; Gupta, 2012; Kapil, 2013; Sharma, 2013; & Suthra, 2011). Even before the independence, there were instances of anti-dam struggles such as the one led by Senapati Bapat in opposition to the Mulshi hydroelectric project in the Western Ghats.

The first large river valley project in India was Hirakud that outbreak widespread protests in 1946 political parties regarding the big dams and the socialist leader like Ram Manohar Lohia who led a struggle against the Rihand project in 1963-64. However, such early protests could not be sustained due to overwhelming influence of the nationalist rhetoric. The success of the mobilization against the Silent Valley project, resulted in the decision to shelve the project in 1983, led to a new phase in the history of resistance to big dams in India wherein the displacement was the central focus in the policy documents. However, alliances between environmentalists, scientists and tribal rights activists succeeded in securing the withdrawal of not only the silent Valley, but also the Bhopalpatnam, Inchampalli and Bodhghat projects over the Godavari and Indrawati rivers. Other notable early struggles against big dams were local movements opposed to the Suvarnarekha, Koel Karo and Srisailam projects.

The most celebrated protest movement against big dams in our country so far has centered around the mega Sardar Sarovar Project on the river Narmada that has displaced approximately two hundred thousand people and majority of the affected population belongs to the tribal communities. Here also charismatic leader like Medha Patkar in 1988 federated into a common platform known as the Narmada Bachao
Andolan by applying Gandhian Satyagraha for the refusal to cooperate the project authorities by blocking all project-related work for protecting the social and environmental impacts of big dams. One of India’s most revered social workers, Baba Amte, left his work of 40 years among leprosy patients at Anandvan to join the struggle of Narmada Bachao in 1989. The World Bank, which was funding the project, in 1991 set up an independent review of the project led by Bradford Morse, who concluded that resettlement and rehabilitation of all those displaced by the project is not possible under the prevailing circumstances thereof in 1993 the World Bank withdrew its decision to establish the project and the Union Government for the first time the negotiationed for the same. In 1995, the Supreme Court imposed a stay on the said project that further was released in 1999.

Similar histories of protest movements are available in Simmim about Rathong Chu project in 1997 and the Bedthi project in 1998. Determined protests have led to review the rehabilitation package for Tehri, and the stalling of work on the Koel Karo project. Construction work in Bisalpur and Mansi-Wakal projects continues amidst organized protests, and work has commenced under police protection in the newest project over the Narmada at Maheshwar (CSE, 1999). A significant development has been the recent revival of struggles by people displaced by dams completed years ago, such as on the Bargi, Koyna, Tawa, and Mahi Kadana (CSE, 1999). The opponents of big dams argued that the big dams although are part of a development strategy yet it intrinsically impoverished and dis-impoverished the poor. Thus, the debate and struggles around big dams in India since independence in fact have been inextricably intertwined with largely irreconciliable ideological battle lines about the nature and impacts of state-induced development. A perspective on the ideology underlying big dams and development and quality of life is as follows:-

3.1 Dams, Development and Quality of Life

Big dams built for irrigation, power and water supply have been the most potent symbols of economic development in general and better quality of life in particular for the people across the world in the contemporary scenario. The large dams is still a controversial issue however is regarded as the effective solutions to control natural rivers and reattribute water (An, 2000). Once upon a time Pt. Jawahar
Lal Nehru considered it as the temples of modern India. In the words of Arundhati Roy (1999), the dams and projects are being for the sake of the greater common good that will progress individual and nation by providing them the facilities of irrigation, power, flood control and numerous others. Our former Prime Minister Jawaharlal Nehru was of the opinion that the dam could bring happiness and that why while addressing the villagers and oustees of Hirakud Dam in 1948 stated that “If you are to suffer, you should suffer in the interest of the country”. The pace in the formation of mega dam developed abruptly worldwide, and an estimated $2 trillion were invested in more than 45000 large dams. The year between 1970 to 1975 was the peak period of dam building in which nearly 5000 large dams were built all over the world. Today dam construction has slowed down in the United States and Europe and the developing countries are leaping forward. For example, India has erected approximately 1554 large dams in the past three decades, and another 40% dams currently are under the way (Shilva, 2002).

Although dams have been built in the world since times immemorial, large dam construction was earlier not possible though needed, because of lack of adequate design knowledge, construction equipment, new materials like cement and concrete and technology of construction. Also, economic conditions and institutional capacity existing in countries that needed large dams did not enable them to take them up. The large dam construction became possible during the 20th century mainly because of advances made in science and technology, which enabled mechanization of construction processes. Improved design of mega dams and their components took much higher loads and stresses. Also, the needy countries had mobilized finances and built up their capacity by then. Large dams, distinct from smaller ones, enable larger storage of water at suitable places, thus saving on multiplicity of efforts which would be needed to construct several smaller ones. Large water storages were also found to be necessity of the society in response to the needs of the growing urban and industrial centers, and generation of hydropower of for agricultural support etc.

The benefits of the mega dam’s therefore deals with the irrigation of agricultural lands, supply of water to meet domestic and industrial needs, generate power, control floods, and enabled navigation. As per the history of dam construction is concerned its inception date was back to 3000 BC in Yemen, Egypt and China. The
first use of dams for hydropower generation was witnessed around 1890. Various countries were at different stages of economic development. Many affluent countries like Great Britain, USA, and Canada undertook dam construction and industrialization on a large scale from early age. World Bank sanctioned first loan to fifteen third world countries for big dam projects. This loan was given to the Chile, Brazil, Mexico, and Salvador (1949); Iraq (1950); Lebanon (1955); the Philippines (1957); Malaysia (1958); Ghana and Lesotho (1986) respectively. The largest borrower in 1993 was India who received $8.38 billion for the construction of 104 big dams. Its funding was later increased from 50 to 70% (Iyer, 1986). It is generally big question that why the World Bank like institution lay its eonphas on the establishment on mega dam.

Currently proponents of dams point to their many benefits such as increased water availability to meet domestic and industrial needs and to increase in agricultural production through assured irrigation and generation of power. Recently debates on large dams have become highly polarized and polemical, obfuscating and real issue. The developmental projects have proved beneficial for progressing social, economic, educational, and cultural aspects. The large dams go in favor of socially, economically and politically powerful person (Singh, 1997). It may also be seen with the development of ‘mental state’ view and the ‘desire fulfillment’ perspective (Sen, 1999). The World Commission on Dam (2000) has reviewed and crosschecked the survey of 125 existing dams all around the world, and recognizes that the benefits of dams are "considerable." It is important for socioeconomic benefit to the host communities, their aesthetic and recreational value in and around dam site, provides opportunities for camping, hiking, fishing, swimming, picnic, boating, white water rafting and water skiing, and generates employment by remove drought and water shortage as well as minimized soil erosion. Therefore, the large dams remain potent symbols for nations pride and progress, commitment to modernization, and the ability of humans to tame and reshape nature through technical ingenuity. Similarly, Mishra (2002) while studying the displaced people of Rengali of Orissa concluded that dam tend to improve the quality of life of poor or marginal and specially the landless people. Perhaps more than any other development initiative, big dams has symbolized the progress of humanity from a life controlled by nature and tradition to one in which nature is ruled by technology and tradition supplanted by science (Khagram, 2004).
Its example is Bhakra Nangal dam it is a part of the BNP that has been provided the service for the nation over five decades (Zinta, 2008. Chandel, 2003). The Bhakra dam was completed over four decades ago. The assessment of performance has revealed that the project has fulfilled all objectives in a sustained manner. In addition, it has provided immense additional benefits to the region and the nation through indirect and secondary consequences. The perceptions of the affected people, too, were ascertained through random interviews with them. The broad conclusion emerging from these are also that the project brought immense prosperity to them. In the case of the BNP, the gain to the poorest group was much higher than that for the average and even higher than for the land owing farmers. Such a result signifies an important implicit message that the dam acts as a powerful vehicle for poverty alleviation. The general lesson learnt from the study of the BNP is that large dams, apart from their direct impact, have a significant indirect and induced impact on the indigenous community. Bhakra-Nangal is a success story of sustained humane development with overwhelmingly beneficial consequences—clearly evidence of the importance of large dams. All in all, it stands tall as concrete testimony to the far-sighted vision and wisdom of the pioneer dam builders of independent India (Rangachari, 2006). A study was conducted by Tiwari (2006) on hydroelectric power generation and economic development on Nathpa Jhakri project, a joint venture of Govt. of India and Govt. of Himachal Pradesh. The study in its result pointed out that the execution of project has been benefited the displaced people a lot and high level of development index among the displaced people has been found. For example the sex ratio has decreased, literacy of female, scheduled castes and tribes males and females has increased significantly and the people were placed above the poverty line after construction of the said project.

Further Tiwari and Zinta (2007) again tried to examine the role of Nathpa Jhakri Hydro Power Project in hydropower generation, as well as socioeconomic development in Himachal Pradesh in broad spectrum. The status of socioeconomic development of these project-affected families has been measured and compared with residents of other districts/regions of the State with the help of development index. It was found that the socioeconomic conditions of the project-affected families were noticeably at higher side in comparison to other region/districts of the State Therefore, it seems that the construction of the project has proved to be an important resource for
the people of rural area that has changed the quality of life of and wellbeing of the people of Himachal Pradesh in general and the people of Canada, Brazil, United States, China and Russia. Brundtland report also inevitably states that developmental projects have fulfilled needs of the people (Mallick, 2011). Beside unprecedented progress made by the projects it also have its social and psychological ramification. According to a conservative estimate approximately 60 to 80 million people have been displaced worldwide due to the reservoirs created by large dams (McCully, 1996) and more worrisome is that 75% of them have not been resettled and rehabilitated properly (Fernandes, 1991), therefore are clogged with psychological vulnerabilities. Some other view the displaced people near up to 2 crore 13 lakh out of which 40% are ST and remaining 20% SC (Fernandes & Chatterjee, 1995). Vries (1999) explored Fifty-one Sri Lankan Tamil refugees / displaced persons living in South India in terms of personal loss, personal traumatic experiences, negative feelings, living in camps, and the availability of support. Result revealed that the health of the respondents was poor. The estimates of world health organization states that here are approximately 80 million refugees and displaced person who are internally displaced exists mostly in low income countries (WHO, 2001) as the vulnerable groups. These people according to Swainson and McGregor (2008) suffer from discursive and material impacts of compensation packages on the basis of economic and social criteria. Interviews conducted by them with Malaysian people revealed that the displaced communities suffered from satisfaction with life, losses of intrinsic place-based cultural and spiritual values, and inadequate compensation. The study concluded that the compensation programmes will always struggle to effectively cope with these less tangible place-based.

By the mid twentieth century, opposition to certain dams grew in vocal and organized paced abruptly. Cernea’s paper (1993) discusses the displacement of 40,000-50,000 people in Indonesia to make way for a Jabotabek urban development project, which involved the widening and upgrading of roads in Jakarta and nearby cities. The modernization of Shanghai’s sewerage system displaced 15,000 urban dwellers in the city. The China and India lead the world in the number of persons displaced by development projects, the proportion of population and territory affected by even the largest of projects in these countries is much lower than in some projects in African countries. For example, the Akosombo Dam in Ghana displaced 80,000
people, approximately 1 per cent of the country’s population, while the Narmada Sardar Sarovar Dam in India will displace 1,27,000 people, roughly 0.013 per cent of the country’s population. By the 1980, only 15.8 per cent of the world’s population lived in cities with 4 million or more residents, demographers suggest that by 2025 this will rise to 24.5 per cent globally and 28.2 per cent in developing countries.

The displacement caused by large dam has actually resulted in transfer of resources from weaker section of society to more affluent or privileged one. Large dam do little to alleviate existing social inequalities. So, the displacement seems to be a process rather than an event (Thukral, 1992). It had caused severe mental illness and threats to wellbeing for the displaced people those for mental peace even do not forget to consume substances and drugs (Briere, Woo, McRar, Foltz & Sitzman, 1997). It has its negative effect for women unless of education, vocation and overall wellbeing. The study of Bhatti, Singh and Vaidya (2001) however has pointed out that sex ratio has declined, literacy rate has increased and annual household income also has increased due to the construction of the Nathpa Jhakri Project in Himachal Pradesh. Studies of large dam impacts by Parasuraman (1993) and Ganguly-Thukral (1996) have clearly shown that the women and children are the more vulnerable to the negative impacts of large water management projects. That ethnic or indigenous minority are negatively affected by many large water projects but now are recognized less. In their work on gender and displacement by large dam projects, Mehta and Srinivasan (2000) argued that large dams have far-reaching consequences on the economic, social and cultural contexts within which men and women live their lives. Largely, the spread of pains and gains has not been equal and to some extent, this is because of gender biases, ignorance and reductionist modes of operating in dam-building activities. It has pushed the people towards refugee like state.

Porter and Haslam (2005) conducted a meta-analytically study to know the extent of compromised mental health among refugees including internally displaced persons, asylum seekers, and stateless persons using a worldwide study sample. Potential moderators of mental health outcomes were examined, including enduring contextual variables and refugee characteristics. Published studies (1959-2002) were obtained by using broad searches of computerized databases, manual searches of reference lists, and interviews with prominent authors. Fifty-six reports met inclusion
criteria (4.4% of identified reports), yielding 59 independent comparisons and including 67,294 participants (2,222 refugees and 4,5073 non-refugees). Effect size estimates for the refugee-non-refugee comparisons were averaged across psychopathology measures within studies and weighted by sample size. The weighted mean effect size indicated that refugees had moderately poorer outcomes. Post displacement conditions moderated mental health outcomes. The result revealed worse outcomes for the refugees living in institutional accommodation, experiencing restricted economic opportunity, displaced internally within their own country, repatriated to a country they had previously fled, or whose initiating conflict was unresolved. Refugees who were older, more educated, female and who had higher pre-displacement socioeconomic status and rural residence also reported worse outcomes. Similarly, the bitter controversies regarding the Sardar Sarovar and Tehri dam projects in India were the most recent instances of such polarized debate (Rangachari, 2006). Such debates gradually encompassed many dams in the undeveloped and developing countries including India (McCully, 1996; Rangachari, 2006). For example Narmada inter-state river water dispute in the context of Indian centre state and inter-state relationships and the constitutional and legal mechanism for resolving disputes among riparian states; the upstream-downstream politics implicit in the battle between downstream Gurjar and Rajasthan versus upstream Madhya Pradesh and Maharashta; and the much publicized struggle between the pro versus anti dam forces over the construction of the gigantic Sardar Sarovar dam (Wood, 2007).

Further, Roberts, Ocaka, Browne, Oyok, and Sondorp (2008) conducted a cross-sectional multi-staged, random cluster survey with 1210 adult IDPs in November 2006 at Gulu and Amuru districts of Northern Uganda. Reveal the levels of exposure to traumatic events and PTSD were measured using the Harvard Trauma Questionnaire, and levels of depression were measured using the Hopkins Symptom Checklist-25. Results based on multivariate logistic regression analysis revealed that the association of demographic and trauma exposure variables on the outcomes of PTSD and depression was 54% and over two thirds (67%) of respondents met symptom criteria for depression. Over half (58%) of respondents experienced 8 or more of the 16 trauma events covered in the questionnaire. Factors strongly linked with PTSD and depression included gender, marital status, and distance of
displacement, experiencing ill health without medical care, experiencing rape or sexual abuse, experiencing lack of food or water, and experiencing higher rates of trauma exposure. This study provides evidence of exposure to traumatic events and deprivation of essential goods and services suffered by IDPs, and the resultant effect this has upon their mental health. In their classic study Ogoboh, Akpanudoedehe, and Ushie (2010) tried to explore socio-economic and cultural impact of resettlement on Bakassi people of Cross River State, Nigeria. The study elicited data from 516 respondents who were purposively selected from the Bakassi resettlement site at Ekpiri Ikang in Cross River State. It was observed that, the resettlement of Bakassi people significantly influenced their occupations, culture and accommodation pattern.

The study of Hota and Suar (2011) examined 172 two displaced families from two tribal-dominated and 232 displaced families from two non-tribal dominated medium irrigation projects in Orissa (India) were interviewed for the study. Using the conceptual algorithm of, equal or increased income and equal or improved housing conditions of a displaced family compared to pre-displacement status, a family was considered to be rehabilitated. Of the total interviewees, 56.4 per cent families in tribal dominated and 36.2 per cent families in non-tribal dominated projects were found to be rehabilitated. Except for the productive use of compensation money, the rehabilitated oustees in tribal and non-tribal dominated projects have more participated in resettlement and rehabilitation activities, received more support and have high self-efficacy compared to non-rehabilitated oustees. Displaced persons with high self-efficacy utilized the tangible support, informational support, the compensation money in more productive ways, and have participated in more rehabilitation activities to reconstruct their livelihood than the displaced persons having moderate and low self-efficacy. The low self-efficacious efficacies of oustees are prone to use various substances. The study of Roberts, Ocaka, Browne, Oyok, and Sondorp (2011) tried to estimate the levels and determinants of alcohol disorder among internally displaced people. The sample of 1206 adults was taken and study was conducted in Gulu and Amuru districts. The audit measure was used to measure the alcohol disorder. Result revealed that only 17% of the sample took alcohol frequently and 66 % drank it once in a month. Factors associated with alcohol disorder included men compared to women, older age, and experiencing a higher number of shocking events. So, the displacement seems to be a traumatic event.
According to Cao, Hwang, and Xi, Juan (2012) approximately 15 million people had been displaced by development projects around the world each year. Despite the magnitude of people affected, research on the health and other impacts of project-induced displacement is rare. The finding in China revealed that the displacement has caused depression and self-rated health problem including changing social integration, socioeconomic status, and community resources problems. In the same tune, Thompson (2012) did a study on Muslim Afghan and Kurdish 200 refugees in New Zealand and Australia on Kessler’s Psychological Distress Scale (K-10). Snowball sampling was used, with multiple initial contacts within each of the four refugee groups to ensure a spread of people with different backgrounds and experiences. The construction of dams results in widespread socio-economic impacts on communities. The results from the study show that Siya Dam has both positive and negative socio-economic impacts in the Mazungunye area. The impacts tend to be selective both spatially and socially. The study noted that the dam can be used for irrigation making agriculture viable in the face of climate change. Fish resources from the dam can also be used to augment dietary protein requirements thereby improving community health and contributing to the achievement of Millennium Development Goals. Further, the benefits of Siya Dam can be enhanced by using its water resources for the development of a mini hydro-electric power plant project has augmented the national power grid and contributed to clean energy production (Mudzengi, 2012).

Beside the displacement impact the hydel projects do have its environmental consequences. The description is as follows:-

3.2 Environmental Consequences of Developmental Projects

The developmental projects that on the one hand is considered important for maintaining better quality of life of the people and on the other has proved disastrous for the environment. Dams generally are considered as the barrier across flowing water that obstructs, directs or slows down the flow, often creating a reservoir, and lake or impoundments. Most dams have a section called a spillway or weir over which, or through which, water flows, either intermittently or continuously, and some have hydroelectric, power generation system installed. They contain dangerous forces under International Humanitarian law due to the massive impact of a possible destruction on the civilian population and the environment. Its failures are
comparatively rare, but can cause immense damage and loss of life. In 1975 the failure of the Banqiao reservoir and other dams in Henan Province, China caused more casualties than any other dam failure in history. The disaster killed an estimated 171,000 people and 11 million people lost their homes. There are approximately 75% to 80% displacement resulted from the developmental projects (Goyal, 1996). These mega dam causes displacement in a large scale.

The, displacement has caused deforestation that has extinguished the plant and animal species like of Homo erectus ape-like human beings in Pleistocene in the Shiwalik region of Western Himalaya (Mahapatra, 1990). The construction of mega dams has created disturbances in the Himalayas. Not only that, the mighty river Saraswati of Vedic time disappeared due to the tectonic movements in Siwalik range (Valdiya, 1996), the geological, evolutionary and environmental changes underlie the unique biosphere of the Himalaya. Although the geological structure of the Himalaya is highly unstable, all developmental activities are further aggravating deforestation, soil erosion, melting of glaciers and changes in river courses (Bahuguna, 1968; Bandyopadhyay & Gyavali, 1994; Stone, 1992). About 4500 years ago, the flourishing Indus valley civilization of the western Himalaya is believed to have drowned in waves of floods after dams formed by descending glaciers broke (Naidu, 1998; Shroder, 1989). Not only that, the mighty river Saraswati of Vedic time disappeared due to the tectonic movements in Siwalik range (Valdiya, 1996). These geological, evolutionary and environmental changes underlie the unique biosphere of the Himalaya. In 1984 Bhopal disaster due to gas release from union carbide factory had affected more than 5, 00,000 inhabitants; 60% of victims were disabled and many of them have various kinds of psychological problems (Callender, 1998). In the words of Louis (2005), the devastation wreck caused by tsunami on 26th December, 2004 also had left a trail of death, devastation and destruction.

Some scientists are alarmed at the accumulated seismic pressure in the Himalaya due to which the big dams may burst and may cause immense loss to life, while others are highly confident that come what may, the titanic structure of big dams will resist the subterranean jolts. The social thinkers are awakening from the mesmerizing impact of the seemingly objective and rational approach of materialists. They feel that the total disregard for non-material factors among contemporary
planners and their adopted methods of development have increased incessantly and caused inequality among the individuals and groups. For instance, the people of the Himalaya perceive that mega developmental projects have caused poverty in hills and prosperity in plains. Out of them Sunder Lal Bahuguna is noteworthy for his concern toward: the basic rights of individual in the context of national interest; the claim of the native people over the natural resources; the consequences of the developmental process on the positive human values like honesty, bravery and the perseverance of highlanders; the intrinsic value of mountains, rivers and valleys of the Himalaya; and, the cultural and spiritual dimension of the landscape from Hindu Kush to Hengduan. His search for an alternative paradigm integrated the global and native concerns into a humanistic developmental approach (Denniston, 1993).

Therefore, the formation of mega dams had caused faults in the plates and morphology of the strata of Himalaya (Denniston, 1993; Valdiya, 1993). The probability of a great earthquake in the near future may be very high (Valdiya, 1992, 95, 97) from the erection of such mega projects. For example, the site of the 260.5 m high Tehri dam directly overlies the candidate rupture plane towards a great earthquake. So, among the most disturbing man-made monstrosities in the Himalayas is the big dam. The process of construction of big dams may continue at a faster rate in the near future as the demand for power increases. Dry river beds, non fertile river valleys, wait the future generation of trackers in the Himalaya. This may appear to be a gloomy picture of a pessimist. However, a number of contemporary scientists have brought out extensive lists and maps of landslides and earthquakes in the Himalaya (Arya, 1992; Gaur, 1995; Narula & Shome, 1992; Valdiya, 1995). Therefore the mega dams are vulnerable for earthquake (Anon, 1990; Dhawan, 1989; Finn, 1995; Krishna, 1990). could result strongest shock (Gaur, 1995; Khatri, 1995; Krishna, 1992; Iyenger, 1995; Rao, 1992; Valdiya, 1997; Gupta, 1992; Valdiya, 1992, 95, 97). It may result devastating flood as took place in Andhra Khud, at Chirgaon near Shimla, on August 11, 1997 (Bahuguna, 1997b; Sharma, 1997) in Himachal Pradesh.

The large dams, therefore, have precipitated the break-down of the physical, biological and social integrity of the river ecosystem by aggravating the conflict. It had dried the river, disturbs living and non-living elements of an ecosystem and are capable of adaptation to pulse disturbances, like annual decrease and increase in river
water. In Himachal Pradesh, although the water from the gigantic reservoirs like Bhakra and Pong dams is greening the plains of Panjab, Haryana and Rajasthan, yet the technologists have no way to take it to the adjacent parched countryside. These projects also have affected the ecology and environment of that area adversely (Sood, 2011; Suthra, 2011). The villagers on the rugged hills along the Bhagirathi and Bhilangana rivers of Tehri await a similar fate where a big dam is gradually devouring their fertile valleys. The planning for the construction of scores of high dams in fragile Himalaya continued without any hazard analysis or proper monitoring (Jayal, 1995).

In the words of Cerna (1995) involuntary population displacement and resettlement are widespread enough, big enough frequent enough, and complex and consequential enough to merit the full mobilization of the conceptual, analytical and operational tools available to address it. According to Gaur (1995), the construction of large dams, apart from disrupting the local environment and ecological systems and the habitat and culture of uprooted communities, expose whole downstream populations to new risks. In tectonically youthful regions such as the Himalaya which are persistently deformed by colossal geo-dynamic forces, the devastation caused by the possible failure of a large dam indeed caused a vast grievance to community who negate, the total benefits that may flow from it. More than two decades ago Sunder Lal Bahuguna roamed worldwide to spread the message that the trees of the Himalaya provide pure water, soil and air (Bahuguna, 1974, 85, 97a). He inspired the masses to protect and plant trees, especially in the mountains of the Himalaya. Bahuguna was struck by this stark reality during his 'Kashmir to Kohima' foot march (Bahuguna, 1983) and started a crusade to save the Himalaya. Now the Third Annual Session Report (April 1995) of the United Nations Commission on Sustainable Development admits that mountains are the predominant and most dependable source of fresh water presently used by humanity.

The World Commission on Dam (2000) acknowledges the significant negative impact of large water resources on human being. The site of the 260.5 m high Tehri Dam also directly overlies the candidate rupture plane of a great earthquake. The future earthquake may have the peak ground acceleration of 1.0 g for about 30 second duration. A lawyer, Virendra Datta Saklani, has asked whether we must demand
evidence of an impending catastrophe before we act (Saklani, 1980 a, b). The mechanism that how traumatic events cause mental disorders had remind as largely unidentified area that need due attachment (Pirta, 2003 & Zinta, 2008). So the displacement not only involves eviction of resident from the physical area such as loss of their livelihood, alienation from their dream houses and, alienation from their culture, identity and places to which they belong. If the displacement occurs forcefully it epitomizes social exclusion that is more socially painful than to the physical pain (McDonald & Leary, 2005) that exert influence on mind. The noosphere of the Himalaya is complex and forms part of the psyche of the people of Afghanistan, Pakistan, India, China, Bhutan, Nepal, Bangladesh and Myanmar (Anon, 1995; Anon, 1998; Mountain Agenda, 1992; Batchelor & Brown, 1994). The integration of the discoveries of science with the divine principle (Devi, 1993) will not necessarily harm, but might even help in maintaining the balance of nature. Swami Chidananda, known for his compassionate services to lepers in the Garhwal. During his visits to Tehri he cautioned the constructors of the dam on the Bhagirathi by saying that: the area is a high seismic zone, and may cause earthquake in the near future. Everyone who engages in the construction of the Tehri Dam shall have to reply for their deeds. Environmentalists like Sunder Lal Bahuguna and his wife Vimla Behan are struggling since 1947 in the Tehri Garhwal for the welfare of the people (Johari, 1990). Virendra Datta Saklani, his wife Kadambari Devi (Saklani, 1996) are some other, who have contributing a lot for stability of the environment.

Famous social activists Cernea concluded that the displacement result landlessness; joblessness; homelessness; marginalization: food insecurity; loss of access to common property resources; increased morbidity; community disarticulation (Cernea, 1997). In Narmada dam this campaign advances two arguments. First success of campaign is largely because of resources mobilized in multi level network and second, contemporary significance of the movement against the project lies in the abilities of the actor to politicize uncertainties, and risks surrounding these projects (Dwivedi, 1998). The ex-Prime Minister, V. P. Singh, was clear when he asked, in his speech in 1995 at the Tehri Dam site, whether it is possible to transplant a village to other place. Jayal (1988) writes "It involves the cultural pauperization of 80,000 Garhwalis from one of our most fertile valleys". Member of these communities consider megaprojects displacement as an externality to be either ignored or
addressed through remediation, much to consternation of transnational advocacy coalition (Gellert & Lynch, 2003). Person’s high level of degradation, deterioration, and destruction is the major cause of displacement. Primary cause of displacement is natural events e.g. volcano eruption, flood, drought etc. Human made cause deals with depletion of water and soil and dam construction, nuclear testing, hazardous waste site and industrial accident. Secondary cause is population pressure disease, malnutrition and poverty. Beside this the seismic pressure in the Himalaya may cause big dams burst and cause immense loss to life. The titanic structure of big dams will resist the subterranean jolts may make public debate necessary (Pirta, 2003).

For example in August 2010, the Ministry of Environment and Forests Government of India rejected the request of the state government for the diversion of forest land for the Renuka Dam project proposed in Sirmour district. The decision on Renuka dam was taken because of the large scale deforestation involved in the diversion and almost 775 hectares of forest land was acquired for the said project. The 148-metre tall and 24-km long Renuka Dam project to be set up by the Himachal Pradesh Power Corporation Limited on the Giri Ganga River in Sirmaur district of Himachal Pradesh will virtually stopped the flow of the river and will submerge an area of about 2000 hectares at its stoppage in Dadahu in Renuka tehsil of Sirmaur district. More than 100 families were displaced and approximately 200 families lost their fertile agricultural land, cultivable wasteland and private forests. Further, a total of 340 families will be affected upstream from the project. On 4 August 2010, the Hallan-Majhat-Karjan Sangharsh Samiti, which is opposing the setting up of 1.5-MW power project on Haripur (Pakhnose) nullah in Kullu district, had accused the state government of abusing state machinery to harass the villagers. According to the Samiti, the villagers were being implicated in false cases at the behest of the private company and cases of theft had been registered even against women. The project, if allowed to come up, would spell doom for over a population of 15,000 of 19 villages in three panchayats as they would be deprived of their main source of drinking water and irrigation. The District Administration had reportedly ignored their concerns and gave report in favor of the private company under pressure from the higher-ups in the government.
Similarly, on 5 September 2010, two persons were seriously injured in disproportionate use of force by the police during against protestors at the 100 MW Malana II site in Kullu district in Himachal Pradesh. The protestors were holding a peaceful protest demanding construction of road, toilets, hospital, drains, streetlights and Panchayat Bhawan as promised by the company while acquiring their land. Generally, the tribal’s were denied compensation after their lands were acquired for development projects. In 1982-83, the Border Roads Organisation acquired land in Madgram village in Lahaul and Spiti district for construction of the Sansari Nallah-Killar-Thirot road. However, the local tribal people who have parted with their land have not received compensation as on September 2010. The tribal’s had informed the matter to the National Commission for Scheduled Tribes which directed the concerned authority for payment of the land compensation amounting to Rs 7, 16, 81,292. Further, a vast area of forest lands has been grabbed by non-tribal’s in Chandra and Bhaga valleys in land-locked tribal district of Lahaul and Spiti. The forest land was grabbed to grow potatoes and peas under the nose of the district administration. As on 13 September 2010, the district administration claimed to have removed encroachments of about 3000 bighas of land from the possession of land grabbers in an anti-encroachment drive in Darcha and Sissu areas.

According to Wilmsen (2011) there seems to be the human casualties while constructing large dam. Beside this in Himalayan area alone there are 3 to 4 % area destroyed by deforestation by various means threatens causes problem to wildlife and humanity (Yeshwantarao, 2012). However, the development of these structures can be accompanied by negative biophysical, socio-economic, and geopolitical impacts; often through the loss of ecosystem services provided by fully functioning aquatic systems. Moreover, impacts of dams can be involuntarily imposed on marginalized peoples whose livelihoods are dependent on river resources. The USA, China, and Southeast Asia to represent a development gradient from developed to developing, respectively. Case studies for each region illustrate the environmental and livelihood impacts of dams in each region have taken place but have its better impact on economy. The environmental and social costs of dams still are persistent that has affected the climate in general and the human being in particular (Beck, Classen, & Hundt, 2012). Similarly the study of Brody (2012) also revealed that the hydroelectric power although is often considered a safe and clean yet has its impact on air and...
atmosphere as well as rivers in the jungles in Brazil. It affects environmental ecosystems and also may cause partly temporary and partly permanent submergence of land in the upstream and displacement of resident person and their property generally, along-with submergence of plant life and disruption to animal and insect life. As reservoir levels recede, the submerged land-rich with fertile soil and silt deposits can produce valuable crops. It may affect the life of the animal, birds, insects and other mammalian species. Beside living things the formation of mega dam may cause harm to non-living things especially to the tree that give human the best life. The Pong dam oustess according to Sood (2011) have been left in lurch to fight a legal battle for their rights in the other state where they were.

3.3 Mega Dam, Displacement and Psychological Distresses

These mega project can not be established in vacuum rather requires acquisition of land that has causes approximately 60-80 million displacement worldwide (Cerneea,2000; Goyal, 1986; WHO, 2001) therefore has corroded and eroded the economic, socio-cultural and psychological life of the human being on the planet. The displacement is also considered as an important dimension of homelessness that describes the dispiriting cycle of losing a home and regaining it, only to lose it again (Robinson, 2003). According to Fahim (1981) from Aswan High Dam Project in Egypt approximately 100,000 people were displaced in Egypt and Sudan. A World Bank review of 192 projects worldwide for the period 1986 and 1993 estimated that 4 million people were displaced annually by the average of 300 large dams that entered into construction every year. In China alone by the late 1980s some 10.2 million people were officially recognized as “reservoir resettles. The World Bank review found that from the 192 projects appropriately 625,000 have been displaced. In fact it is well established now that underestimation of figures is the norm rather than the exception (China Report, 1999, McCully, 1996). In China’s Danjiangkou Dam displaced 383,000 people, while its ongoing three Gorges Dam project had displaced 1.2 million. Indonesia’s Jabotabek project displaced 40,000-50,000 people, and India’s Hyderbad Water Supply Project ousted 50,000 people, therefore is among the largest urban displacements on record. The reservoir of the Akosombo Dam flooded 3.5 per cent of Ghana’s land, while that of the Narmada Sardar Sarovar Dam will cover only 0.01 per cent of India’s territory. Soils
Incorporated and Chalo Environmental and Sustainable Development Consultants (2000) also assess the Kariba Dam project in Zambia, which displaced approximately 57,000 people. In India alone it is estimated that approximately 42 million people have been displaced by dams and reservoirs and at least 20 million oustees are from big dams and irrigation projects (Femandes, Das & Rao, 1989; Roy, 1999).

The formation of mega dam and reservoir may cause landlessness and houseless in the individual those have negative impact on the individual (Terkenli, 1995). According to Fullilove (1996) person's psychological processes is affected by the geographical displacement that may include attachment, familiarity, and identity of the person. In this respect a link between science and society is essential to develop healthy ecosystems for our survival (Odum, 1997; Wynne-Edwards, 1986) because the behavior is a response to external stimulus. However, certain internal factors, largely mental, may also determine human action. It is reflected in the integration of cognitive psychology and behavioral ecology (Yoerg, 1991). The brain performs cognitive mapping of external objects, their properties and relationships between them. A controversial but significant belief is that the principles of psyche or soul, a transcendent consciousness (Pirta, 1991; Rajan, 1988) guide the mind. Some of the principles are: love for nature, life in everything, urge for truth and Advaita (non dualism). Thus the developmental projects have exceeded influences on the mental processes.

The formation of reservoir for the mega dam not only has the impact for the person current life but also has persisted throughout life. One study has estimated roughly 8,30,000 Vietnam theater veterans who continued to experience significant post traumatic distress or impairment approximately 20 years after their exposure to one or more traumatic stereotypes (Weiss et al, 1992). Famous economists Amartya Sen (1999) considered the poverty as an important factor behind human suffering that is further worsened by formation of mega dam. It may force the person to migrate by leaving their place. The study of Jan, Louise, Maria and Seven Erik found the impact of migration status on exposure to violence, sense of coherence, acculturation status, sense of control over one's life, economic difficulties, and education, both on psychological distress. Result revealed a low sense of coherence, poor acculturation (men only), poor sense of control, and economic difficulties were strongly associated
with the outcomes, generally accounting for a convincing link between migration status and psychological distress. So, the vast displacement is strongly linked with such developmental projects, those may erode psychological aspects and behavioural processes of the affected communities.

The study of Silove, Steel, McGorry, and Mohan, (1998) tried to compare displaced persons whose refugee status has been endorsed prior to arriving in Western countries in terms of their level of past trauma, post migration living difficulties and psychiatric symptoms amongst asylum-seekers who claim refugee status only after arrival. A total of 62 subjects, constituting approximately 60% of the estimated pool of Tamil asylum-seekers, agreed to participate in the study. They returned statistically significantly higher scores than immigrants \( (n=104) \) on measures of past trauma, symptoms of anxiety, depression and post-traumatic stress, and on all dimensions of post migration difficulties. Asylum-seekers did not differ from refugees \( (n=30) \) on measures of past trauma or psychiatric symptoms, but they scored higher on selective components of post migration stress relating to difficulties associated with their insecure residency status. Although limited by sampling and diagnostic constraints, the present study suggests that asylum-seekers may be a high-risk group in relation to ongoing stress in the post migration period.

In Himachal Pradesh Chandel (2003) tried to explore the mental health of Bhakra Dam oustees. The result revealed that displaced rural population suffered from psychological aspects due to non-availability of common land, lack of fertile land, deterioration of social support system, negative attitude of host population, apathy of authorities, and loss of identities and general helplessness. The study revealed that it is very difficult to talk about physical, social, and psychological aspects yet some people reported suicidal thoughts during early phase of the displacement due to their attachment with the native land. In a classic study, Pirta (2003b) found displacement deleterious for mental health. He conducted a study on the displaced people of Tehri Dam in Uttranchal. The study revealed that insecure physical settings, acculturation and separation from place of attachment affected wellbeing and mental health of these displaced people of that area.

Some social-psychologists find that the construction of dams may have tangible and dramatic outcomes. It continues to fuel of intense debate between dam
proponents and opponents, a debate which hinges on different perceptions of the economic, social, and environmental, ecological and psychological benefits as well as impacts of large dams (Khagram, 2004; Rangachari, 2006; Pirta, 2000, Wood, 2007; Zinta, 2008). Similarly Fazel, Wheeler, and Danesh (2005) conducted that the prevalence of serious mental disorder in 7000 refugees settled in western countries. 20 eligible surveys provided results for 6743 adult refugees from seven countries, with substantial variation in assessment and sampling methods. In the larger studies, 9% were diagnosed with post-traumatic stress disorder and 5% with major depression, with evidence of much psychiatric co-morbidity. Five surveys of 260 refugee children from three countries yielded a prevalence of 11% for post-traumatic stress disorder. Larger and more rigorous surveys reported lower prevalence rates than did studies with less optimum designs, but heterogeneity persisted even in findings from the larger studies. Worldwide, tens of thousands of refugees and former refugees resettled in western countries probably have post-traumatic stress disorder. The formation of reservoir for mega dam has affected social and interpersonal sense of belonging such as interpersonal relationship of the people as well (McCracken & Black, 2005). From the above studies it is concluded that the developmental projects have a negative impact on the mental health of the displaced people.

Not only this, the study of Baboo (2009) examined the case of the Hirakud dam of Orissa in India in the light of a duality in human geography and concluded that the river Mahanadi has affected 22,000 households those still have the memories of their homeland in the event of breach of the dam. In the same tune the study of Carla (2010) while assessing the dam oustees of Sardar Sarovar in India concluded that the displaced people here have suffered here from loss of community, livelihood, and health parameters. In their classic study, Hwang, Xi, Cao, and Xi (2010) interviewed 1,530 migrant and 1,070 non-migrants. The result revealed that forced migration elevated depression not only directly, but also indirectly by weakening the psychosocial resources that safeguard migrants and mental well-being. The study also supports the psychological consequences of large dams.

So, the establishment of such mega, medium and small dams are generally for the sake of individual and community overall development that in the present scenario deals with the accumulation of material wealth (Bahuguna, 1996, 97a). It is strange
that the surroundings of the Bhakra and Pong dams failed to inspire even creative people (Sood, 2011; Sharma, 2013). The Pong Dam oustees of Himachal Pradesh are a living example of the effects of displacement on the social life of a community (Anon, 1991). Almost same is true for the oustees of Bhakra Dam who were the first victims of the 'temples of modern India. Those who live on the periphery of the artificial lakes caused by these two dams are also a miserable lot (Zinta, 2008). They can see the enormous lakes but its water remains beyond their reach. Their small land holdings are submerged in water during the rainy season and remain dry and parched for most of the other months of the year. Tiny islands dot the lakes that have formed over what was once an expanse of the green valleys. Local people compare their lives with existence in the Kala Pani Jail (the famous prison in Andaman & Nikobar) of the British Raj. Bahuguna's worry over the years has been the quality of life rather than its materialistic quantity. It is his search for an intrinsic quality of life that he transcends into a spiritual world. There are threats to the forest and forest produces. Protest of Chipko Movement that spread through folk songs of Ghanshyam Sailani and Tikekar referred the environmental knowledge in Bhagvata Katha and the Jataka tales as the traditional way of developing a noo-sphere, an ethics to behave with nature.

The study of Salah, Abdelraham, Lien, Eide, Martinez and Hauff (2012) tried too assess the prevalence of mental disorders of IDPs in Sudan, and to determine and compare the association between mental disorders and socio-demographic variables between the rural and urban long-term IDP populations. A total of 1,876 adults were enrolled from both study areas. The overall prevalence of having any mental health disorder in the IDP population was 52.9%. The most common disorders were major depressive disorder (24.3%), generalized anxiety disorder (23.6%), social phobia (14.2%) and post-traumatic stress disorder (12.3%). Years of displacement and education were associated with different mental disorders between the two areas, and there were no gender differences in prevalence of mental disorders in either area. This study shows high prevalence rates of mental disorders in both urban and rural IDP populations in Sudan, indicating a need to explore the circumstances for these high rates and to develop appropriate responses. So it is a matter of great exploration that whether these mega dams and projects are really helping the community where it is established and are they really catering the need of the poor person. In the below
mentioned paragraph an attempt has been made to explore the wellbeing of socially disadvantaged people after the partial and compete loss of land in the reservoir.

3.4 Wellbeing among Disadvantaged Displaced Dwellers

The displacement of poor mountain people living in the villages has occurred without their consent. For example, Halduon ki Ghati, once a prosperous valley in the Siwalik of Himachal Pradesh, now lies submerged in the waters of the Pong Dam. Most of its people are living a miserable and alien life in the desert of Rajasthan (Sood, 2013; Suthra, 2013). Large dams continue to have its impact on indigenous peoples and ethnic minorities (Zinta, 2008). Laws to protect their rights are weak or not adequately implemented. The problems are rooted in a number of structural-institutional and political-economic factors. These factors include: denial of the right to self-determination; structural inequalities in power between ethnic minorities, indigenous peoples and the wider society in which they live, including racism and other institutionalized forms of discrimination; practices such as cost-benefit analysis and national planning that reinforce the marginalized status of indigenous peoples and ethnic minorities; de-politicization of resource-related and other conflicts arising from dam building; institutional priorities of implementing agencies take precedence over the critical social and environmental costs associated with large dam projects; lack of accountability of planners and implementing agency towards affected people; and the intrinsic tendency of large development projects to maintain and reinforce inequitable access to resources and decision making.

A large number of scholars and activists have questioned development projects that displace, marginalize and impoverish thousands of poor (Fernandes & Thukral, 1989; Kothari, 1996; Thukral, 1992). A consensus seems to have emerged that development induced displacement causes considerable social, economic and cultural disruption and losses for both the individuals and the communities (Dwivedi, 1999; Dreze 1997; Scudder 1993; Oliver Smith, 1991; Thukral, 1992; Parasuraman, 1993; Morse, 1992; World Commission on Dams 2000). Ill impacts of displacement include socio-economic impoverishment, human rights, loss of livelihoods, loss of land and housing rights, loss of community cohesion all of which contribute to the
impoverishment associated with displacement as arised from the establishment of mega dams and power projects.

The benefit and cost analysis used by technocrats is taking the environmental movement into a blind alley, from holism to reductionism. For example a voluntary report on Tehri Dam concluded that considering various physical and socio-economic factors, the benefit from Tehri Dam is almost half of the cost (Paranjpye, 1988). The study Ajdukovic and Ajdukovic (1993) reported that the refugee children exhibited a significantly higher incidence of stress reactions if their mothers had difficulty coping with the stress of displacement. The findings also indicated that the children in the collective shelter were at greater mental health risk than their peers housed with host families. Physical scientist and technocrats being individual living in a society develop a false sense of complacence that they understand social phenomena and tend to dilute the very nature of social concepts (Sen, 1995). In his study, Nandy (1998) also warned about such injustice and Kakar (1995) told that it might result colour of violence among the native people. Inappropriate developmental processes in the Third World Countries like India has created situation of inequality and exploitation that has resulted frustration and rebellion among the native people (Gadgil & Guha, 1995).

Agnihotri’s chapter (1996) exposed another form of gender discrimination in compensation criteria in Orissa, where entitlement to land compensation for unmarried persons is set at age 18 for men and age 30 for the women. Other researches have shown that, in urban development projects, women can be harder hit by displacement because they are more likely to derive income from small businesses located at or near their residences. In rural areas, women can be more adversely affected because they are often more dependent than men on common property resources for income sources. Agnihotri signaled blatant discrimination against women in terms of compensation criteria. These projects have destabilized the material base of the tribal (Nath, 1998). For human development social, cultural, psychological, religious, and spiritual dimensions of human existence that are corroded by the dam (Anon, 1999). The scheduled tribes and scheduled caste people generally are the sufferer.

The castes are the systems of occupation, endogamy, social culture, social class, political power that assign individuals in a social hierarchy .Generally the
scheduled caste and the females in general as well as the females belonging to the lower castes in particular are worse affected by these developmental projects. On the one hand, they suffer with caste stigma followed with long-term deprivation and on the other hand the displacement corrodes their homeostasis and quality of life (Zinta, 2008). The socioeconomic status seems to be the panacea for their mental health and overall wellbeing. There are various studies that exemplify variance in terms of gender where in the displaced women suffer more (Feeney, 1995; Koenig 1995; Pandey, 1998). Comprehensive reviews of the worldwide evidence on indigenous and tribal groups affected by forced resettlement are vulnerable groups leading towards impoverishment (Femandes 1991, 2000; Mahapatra, 1994; Nayak, 2000; Colchester, 1999)). Elaborating on the risks and reconstruction model in light of evidence from India, Mahapatra (1999a) suggests that to the eight-fold impoverishment risk model one may add the educational loss affecting children. Relocation often interrupts schooling and for some of these children it means that they never return to school. After displacement, as a result of drops in family income, many are drafted into the labor market earlier than what would have otherwise been the case. So the displacement exerts its influence on socially disadvantaged people by pulling them in stress condition.

The concept of stress has been used both in psychology and medical literature and has sparked considerable controversies as well (Lazarus, 1980; Selye, 1976) that refers to generalized physiological and psychological state of the organism wherein he felt sought of pressure on him. The environmental crisis is its unfolding sign that results threatening life support system. This man-environment relationship tends to take the form of man and environments relationship (Sinha, 1990). Sometimes the changes introduced externally the name of development and sometime it occurs due to people’s physical or symbolic contact with members of other cultural groups. When the latter happen, the changes are called as acculturation. The psychological acculturation refers to the mental changes in individuals whose cultural groups are collectively experiencing acculturation. The course of acculturation includes housing, biological (nutrition), cultural (political, economic, linguistic, religion), social (role relationship) and psychological changes (Berry, 1990; Berry & Kim, 1988). Thus throughout the 20th century interest in the psychological impact of trauma has peaked during and after wartime the first major study of combat related psychological
sequelae. Dealing with survivors of world War-II death and prisoner of war-camps brought some insight into the effect of extreme trauma on psychological functioning. DSM-II and one year later ICD's manual of international Statistical Classification of Disease, injury ad cause of death (ICD-8) appeared with reference to combat fatigue or fear associated military combat manifested by trembling, running and hiding.

People face social and psychological traumas and injustice (Bahuguna, 1997; Valdiya, 1998). These traumatic events caused impairment in the memory system by damaging the brain structure and lowering the performance related to cognitive and behavioral aspects. The gender is most commonly used to refer to social roles, social relations and social practices (Gallin & Fergusson, 1991). It encompasses structuring of power and resources, and the ways in which certain groups and forms of knowledge have gained legitimacy over others (Duerst & Kelly, 1995; Kurian, 2000). It is a powerful social and cultural construct determining the ways in which social relations are structured between men and women. It is central to how societies assign roles, responsibilities, resources and rights between men and women (Mehta & Srinivasan, 2000). It constitutes the entire gamut of relations that govern the social, cultural and economic exchanges between women and men in different arenas from the household to the community, state and multilateral agencies (Jackson & Pearson, 1998). Gendered values and practices thus have the potential of marginalizing certain groups of people, including third world peasants, tribal, women and poor.

In the context of development projects, gender becomes especially significant for several reasons. Gender and class based division of labor, distribution of property and power, structure people's interactions with nature and in the process structure effects of environmental change on people and their responses to it (Agarwal, 1996). The differences in the divisions of power, labor and property, based upon perceived and ritualized gender differences, result in women and men of the same class experiencing environment in different ways, hence having a different knowledge of the environment. Several studies elaborate on vulnerable communities like women and the children that tend to be impacted by the displacement in ways that require an evaluation beyond monetary loss of land (Colson, 1999; Thukral, 1996; Parasuraman, 1993 and 1997; Srinivasan, 1997; World Bank 1994, 2001). Often rules that are intended to protect women, list women as dependents, rather than full citizens.
(March, Smith and Mukhopadhyay, 1999). The displacement has directly influenced the thought processes, behavioral aspects, and quality of life among the socially disadvantaged population in India in general and Himachal Pradesh in particular.

According to the scientists or psychologists, the researches in the area of memory spans from archives of history to the molecules of the brain (Kandel, 1999) are limited. In this ways the displaced persons reject the resettlement sites (Asif, 2000) because the authority pressurizes them that exert pressure on their spirit thereby affect and lower their psychological resilience. The marginalized sections of the societies especially comes in its grip those already suffer from time immemorial and their suffering multiply many time after being displaced and affect their ability to bounce back the stressor. Therefore, the development processes have severe impacts on human or community’s behaviour, cognitive processes. Experimental and clinical studies show serial interactions between pain sensation intensity, pain unpleasantness, and secondary affect. Michael Cernea (2000) pointed out that the forced displacement and being ousted from one’s land and habitat carries with it the risk of becoming poorer than before. In the words of Muggah (2000) and Downing (2002) the displacement result loss of access to community services and violation of human rights. Men and women are affected differently by these developmental dam projects. Women are harder hit by resettlement than men since they are more likely to earn their living from small businesses located at or near their residences.

Thus the socially disadvantaged displaced people are in a deep pain (Zinta, 2008). These pain dimensions and their interactions relate to a central network of brain structures that processes nociceptive information both in parallel and in series. Spinal pathways to limbic structures and medial thalamic nuclei provide direct inputs to brain areas involved in affect. Another source is from spinal pathways to somatosensory thalamic and cortical areas and then through a cortico-limbic pathway. The latter integrates nociceptive input with contextual information and memory to provide cognitive mediation of pain affect. Both direct and cortico-limbic pathways converge on the same anterior cingulate cortical and sub-cortical structures whose function may be to establish emotional valence and response priorities (Price, 2000).

According to the conservative estimate of WHO there are 5 million refugees or displaced persons mostly living in low income countries (WHO, 2001) are the most
vulnerable groups and suffer from mental health problems. From the major as well as minor dams or projects the ousted people involves approximately 10 million who are in a quite apathetic state and suffering from mental health. The mental health is a psychological construct that is a part of health and is very important for the individuals, society and the countries (WHO, 2001). Its problem has become a greater issue in the contemporary society and presently 450 million people are suffering from a mental or behavioral disorder but only a small minority receives treatment. The new approaches to mental health envisaged by the WHO states that like many physical illness, mental and behavioral disorders as arised from formation of mega dam has become crucial. From the cross cultural perspective it includes subjective well-being, perceived self-efficacy, autonomy, competences, intergenerational dependence and self-actualization of one’s intellectual and emotional potential.

The principles of “greater good for the larger numbers” rationalize the displacements and thus some people enjoy he gains of development while others bear its psychological pain (Cemea, 2000). According to Fernandes (2001) the rural poor especially from marginalized section of the society that generally comprises 40% tribal and 20% from scheduled caste are the sufferer of displacement. Sapkota (2001) also concluded that the large infrastructure projects affected the poor people even in Nepal. The study concludes that the intensity of various impoverishment risks in the 1000 affected Kali Gandaki Dam was not equal: it varied among different subgroups of a total 1,000 affected families families now have 25-50 percent less land and assets than before appropriation followed with decreased lands and trees, agricultural production and number of livestock including risk of joblessness, homelessness and houselessness reconstruction problems as well as risk of marginalization. It is important to note that the significant number of displaced people at regional and global level is an indicator of a large socially and psychological vulnerability of the population (Bhugra & Mastriogianni, 2004; Singh & Banerji, 2002). But the study conducted by Tiwari (2006) as well as of Bhatti, Singh, & Vaidya (2002) has compelled people that either they are benefited or sufferer itself is a great question that needs microanalysis and qualitative observation as suggested by Bandura (1977) to record the change in behavior. But the series of study conducted by Pirta and his students in the psychology department of Himachal Pradesh has pointed out that the displacement caused by the construction of big project has resulted poor
mental health, high level of state anxiety and dissociation (Chandel, 2003; & Pirta, 2002, 2003a, 2003B) among the people. The formation of Bhakra dam has enmeshed the displaced people in poverty that in turn influence their mental health.

According to Vaillant (2003) mental health is considered as those individual who are above normal, mature as well as shows emotional and social intelligence. Beside this they also show subjective well-being, resilient to stressor as well as their better adaptation to the environment. Large scale infrastructure projects including dams are significant part of socio-economic development in most of the nation of the world (Yen, 2003). But the displaced people sufferer from possible mental health. While studying such vulnerable population separate analysis is required in case of long term and short term project affect and there is a need to explore the impact of loss of home and other properties including land that till today has remained drawback in the areas (Pirta, 2003a, 2003b; Singh & Banerji, 2002) need further study by following microanalysis to record the change (Bandura, 1977; Zinta, 2008). In a study, Pirta (2003b) found displacement deleterious for mental health. He conducted a study on the displaced people of Tehri Dam in Uttranchal. The study revealed that insecure physical settings, acculturation and separation from place of attachment affected wellbeing and mental health of the people. Webber and McDonald (2004) also found that resettlement of Xiaolangdi dam on the Yellow River in China suffered from displacement. Especially the income levels, equality, and forms of production have suffered from the developmental projects like Mega dams.

The displacement has corroded psychological and social life of the individuals. The study of Sharma (2005) tried to assess the effect of displacement on depression, general wellbeing and state anxiety among displaced males and females of Bilaspur in Himachal Pradesh. The result revealed that the effect of displacement was significant for depression, state anxiety and general wellbeing. In nutshell, the displaced people reported higher degree of depression, state anxiety and general wellbeing as compared to their counterpart. In recent years the construction of large dam has attracted severe public criticism mainly due to the unsatisfactory rehabilitation of the displaced population (Leslie, 2005, Mehta, 2002 & Pirta, 2005). The same situation was experienced by famous writer and booker prize winner Arundhiti Roy in 26th July 2004 who asks a question that "what is it about one’s
understanding or nationhood that allows government to crush their own people with such impunity (Herdia, 2005). It has stressed on the role of Govt. to minimize displacement to prevent sufferers of projects affected people due to impoverish and dispossess and to prevent social disarticulation and erosion of cultural values especially of scheduled castes and scheduled tribe’s women (Ganguly, 2005). In their study Schmidt, Kravic, & Ehlert, (2008) compared PTSD and self-concept in Bosnian refugee, women (n = 29) with women who were internally displaced (IDP; n = 26) and non-displaced women (n = 32). Data were collected using the Bosnian Trauma Questionnaire and four scales assessing self-esteem, perceived incompetence, externality of control attribution, and persistence. IDPs scored significantly higher on PTSD symptoms, externality of control attribution and perceived incompetence, and lower on self-esteem than both refugee and non-displaced women.

In a study Zinta and Tiwari (2008) performed psychological analysis on project affected and likely to be affected families of Satluj Jal Vidyut Nigam limited in Himachal Pradesh. The result revealed that the prolonged affected families were poor in quality of life, high on displacement stress, less on happiness and mental health. The prolonged project affected families showed poor quality of life as compared to the recently and likely to be project affected families. They also experienced high displacement stress and less happiness index as compared to recently affected families. The likely to be affected families were found low in displacement stress and higher in happiness as compared to their counterpart prolonged and recently project affected families. Further Zinta (2008) studied psychological resilience in 400 (200 displaced and 200 normal) aged men and women (55-80 years) among rural population in district Bilaspur district after loss of home in Govindsagar reservoir due to the construction of Bhakra Nangal Dam. Qualitative observation suggested a deep pain due to loss of home among the rural displaced population. These families were suffering from physical, social, ecological, socio-cultural, psychological, religious as well as political problems as well as harshness of the administration. They were found in wear and tear with plentitude of mental and behavioural problems and today no body remind their sacrifice. Quantitative findings also showed that loss of home as statistically significant effect on all the measure used in the study. Gender affected positive mental health, well-being and neuroticism. Displaced group showed more negative valence to the loss of home and poor positive
mental health. In nutshell, the displaced population showed poor wellbeing, greater neuroticism, and higher state anxiety as compared to their counterpart normal subject. Further, the displaced scheduled castes showed more problem and psychological vulnerabilities as compared to displaced general people as well as comparison groups. There seem to be various factors behind the psychological vulnerability of the dislocated people.

The Central and State Authorities sometime comes in conflict those impacts have to bear by the project affect people. Its example is our state Himachal Pradesh wherein present Chief Minister of the state showed his wrath and warned the Rajasthan and Centre government to pursue the matter in Supreme Court if the oustees of Pong dam will not be rehabilitated properly (Chief Bureau of Divya Himachal, 2010). In his study on Bhakra dam Zinta (2008) also observed that the formation of reservoir by big dam has its psychological and sociological ramification that the concerned oustees of the projects are being faced. Bang, (2008) observed that the science-led disaster management nature of the Lake Nyos has focused erupted physical risk to the lives and livelihood of the disaster survivors. Results also show that risk perception and relocation decisions are guided more by socioeconomic and cultural factors. The study of (Adeola, 2009) focuses on mental health and psychosocial distress as resulted from the sequel of Hurricane Katrina cataclysm survivors. The results revealed the racial differences in psychological impacts including reported symptoms of sleeplessness, anxiety, depression, and worries about the future. The study of Hwang, Xi, Cao, Feng, and Qiao, (2009) on 975 migrants 555 non-migrant of three George dam in China revealed that the involuntary migration is a robust predictor of mental distress.

Musonda (2009) did a study to investigate the impact of the Gwembe Tonga Development Project on the Gwembe Tonga people. The number of people displaced were 57,000 those mostly belongs to poor and marginalized sections of the society. Resettlement policies and programmes, in the Indian context, for them have largely remained gender biased and the govt. failed to take into account the differential experiences of women, while resettlement process (Bisht, 2009). Bader, Sinha, Leigh, Goual, Andrews, Valeeva, Sirois, and Doocy (2009) found that the population displaced by conflict faced numerous threats to their psychological well-being;
consequently, the prevalence of mental health problems, including anxiety, depression, and post-traumatic stress disorder. Further, they told that very little is known about the mental health needs of displaced Iraqis. Of the 664 survey participants and, 49% reported needing mental health services and 5% need had access to services. The Policy Status for rehabilitating displaced people in India is also poor.

Hamid and Musa (2010) investigated the effects of the Darfur conflict on mental health of 430 internally displaced persons from three camps located around Fasher and Nyala towns. Male participants represented 50.6% of the sample while female participants represented 49.4%. They were assessed through GHQ-28 for detecting PTSD. Results showed a high dissatisfaction rate (72%) with living conditions among IDPs. There was also high prevalence of PTSD (54%) and general distress (70%) among IDPs. Female participants showed more somatic symptoms than their male counterparts. Married participants were more distressed, anxious, and showed more social dysfunction, while single ones reported more avoidance symptoms. Thapa and Hauff (2012) found that most internally displaced persons (IDPs) live in low-income countries those differ in perceived needs, self-reported health, and disability level.

A cross-sectional survey among 290 IDPs in Nepal was conducted between June and July 2003 those were measured by World Health Organization’s Disability Assessment Schedule-II; Hopkins Symptom Check List and the Posttraumatic Stress Disorder Checklist Civilian Version. The displaced people suffered from financial problem (70%), housing (40%), food and education for their children (20%). Further, the Self-reported health status was strongly associated with distress and disability scores. Factors independently associated with disability were higher age, self-reported health, depression, anxiety but not the PTSD. More worrisome is that being the third major dam builder, India is not bothering about the displaced people from the big dam. Development projects in India have displaced millions of people and yet there is not a single national legislation for rehabilitation (Khaitan & Priya, 2009). Although Judiciary recently has granted Article 21 as right to rehabilitation, yet it is violated at every foot-step that is directly related to poor quality of life. The migrant suffer from
social justice issues (Akinsulure-Smith, & O’Hara, 2012) such as medical, social, legal, cultural, and linguistic basis.

The study of Betancourt, Salhi, Buka, Leaning, Dunn, and Earls (2012) investigated the factors associated with internalizing emotional and behavioural problems among (N=183) adolescents displaced during the most recent Chechen conflict. Levels of internalizing were higher in displaced Chechen youth and girls demonstrated higher problem. In multivariate analyses, the family connectedness appeared as a significant predictor of internalizing problems, independent of age, gender, housing status and other forms of support evaluated. Sub-analyses by gender indicated stronger protective relationships between family connectedness and internalizing problems in boys. Fazel, Reed, Panter-Brick and Stein (2012) in their study found that individual, family, community, and societal risk and protective factors are responsible for mental health in children and adolescents who are forcibly displaced to high-income countries. After displacement the host villagers and communities do not allow them to go through their field of cultivation in harvesting and even carrying them dead to the cremation. There are sense of alienation, anger and feeling of helplessness among them. Mental health problems are an inevitable cost of resettlement and relocation program that should be recognized by the planners.

One such factor is stress, a psychological mechanism that strains physiological well being and mediates between the measure of resilience and vulnerability in psychosocial, physical and cultural environment (McEven, 1998). Further, Lin (2001) while studying the resettlement of the Kadazandusun indigenous community of Kampung Tampasak in Penampang, Sabah, to construct the Babagon dam concluded that the women, men, and children in the resettled community have experienced increased social, economic, cultural, and psychological stresses. Resettlement has resulted in a restructuring of gender relations, livelihoods, value systems, and culture. The study shows that the burden of change is far greater for women who have even less access to the benefits of 'development' than do men. The thought, feelings and behavior of individual are influenced by actual, imagined and implied presence of others (Charney, 2004). The power of minorities lies in their steadfast and consistent behavior toward a social system.
Resettlement policy should explicitly address the mental health needs of populations affected and now have the knowledge to draft at least the outline of mental health documents, resettlement and relocation policies (Good, 1996). However, the draft of policy 1998 stressed on minimizing displacement, involvement of participation of affected one, recognizing their right, compensation and replacement. The replacement includes economic, social and psychological trauma, human and social infrastructure. It further involves regional planning, monthly allowance of 20 days, plot house, permanent job, patta holder, rebuilding livelihood, owner, artisan, barber fooder, food, fertilizer, medicinal herb, place of worship, social, cultural loss, break up of community, family, family institutional, social pollution, malnutrition, and environmental degradation etc. It has stressed on the role of govt. to minimize displacement to prevent sufferers of projects affected people due to impoverish and dispossession and to prevent social disarticulation and erosion of cultural values especially of scheduled castes and scheduled tribe’s women (Ganguly, 2005).

The formation of Mega dam in Himachal Pradesh such as Bhakra-Nangal and Pong dam have affected the life of the displaced people more drastically. The Pong Dam was built in 1960 across the Beas River in Kangra district but the people displaced by the dam are still awaiting rehabilitation. The District Administration of Kangra had finalized the list of 2,505 Pong Dam oustees last one year, who have not been allotted any land at the end of August 2010 by the Rajasthan government. Both Rajasthan and H.P. Govt. are still at logger heads to settle 16352 families uprooted during the execution (Sood, 2011). Thousands of dam oustees are bearing the brunt of displacement from their home land in the name of development. The Pong dam oustees are left in lurch to fight a legal battle for their right in the other state where they were promised an equal share of land. The Supreme Court had earlier directed the Rajasthan government to allot 1,188 hectare reserve land in Ganganagar district for the Pong Dam oustees. The state government of Rajasthan failed to comply with the Supreme Court directions. Instead the state government of Rajasthan has been offering about 3,500 muraba land in Bikaner district to the Pong Dam oustees. However, the land being offered does not have any irrigation facility and barren. The state govt. has failed to resolve the problem of uprooted people and only 2538 families so far has given Ecr for their settlement in Rajasthan during the past 40 years. The local people in the vicinity of Pong dam have narrated that Deputy Commission,
Rehabilitation and Resettlement wing, formed by the State govt. for the well being of Pong dam oustees have failed to maintain proper data of displaced people who scarified there everything for the sake of development of the nation. The planner was not much concerned for the displaced people. According to Loveleen and Zinta (2006) the person under mental disorder requires humanitarian approach to get rid of the negative symptoms and maintain healthy life. In nutshell the studies as mentioned above revealed that the formation of mega dam for the establishment of power project although have positive impact for the development of communities yet is deleterious for displaced people. It increases allostatic load and psychological vulnerability such as stress, anxiety, depression and loneliness etc. and influence their inner process like self-efficacy and self-esteem that exert their quality of life. The displaced people in general and the scheduled caste/ scheduled tribe and women in particular are worsely affected by the displacement. Therefore following hypothesis has been framed:-

3.5 **Hypotheses**

1. *There will be a significant difference between scheduled caste and non-scheduled caste displaced and non-displaced people in terms of anxiety.*

2. *There will be a significant difference between the scheduled caste and non-scheduled caste displaced and non-displaced people in terms of loneliness.*

3. *There will be a significant difference between scheduled caste and non-scheduled caste displaced and non-displaced people in terms of optimistic and pessimistic attitude.*

4. *There will be a significant difference between scheduled caste and non-scheduled caste displaced and non-displaced people in terms of general wellbeing.*

5. *There will be a significant difference between scheduled caste and non-scheduled caste displaced and non-displaced people in terms of quality of life.*
6. The relationship of psychological variables to the dimensions of quality of life will differ in terms of magnitude and direction of correlation among scheduled caste and non-scheduled caste displaced and non-displaced people.

7. The psychological variables will significantly exert its impact on the dimensions of quality of life among scheduled caste and non-scheduled caste displaced and non-displaced people.

3.6 Rationale Behind Forming Hypotheses

The objective of the study was to analyze the cognitive behavioral aspects and quality of life among the Pong dam oustees of district Kangra of Himachal Pradesh. For attaining the objective necessary related literature have been reviewed. On the basis of reviewed literature certain hypotheses have been formed. However some important studies were given top priorities by the researchers while framing the hypotheses. Therefore in the below mentioned section relevant studies have been presented so as to provide rationale behind forming the hypotheses. The description is as follows:-

The developmental projects in the present scenario are being established in every country. But a development project such as hydel projects cannot be established in vacuum rather requires acquisition of land. As a result, such projects displace millions of people from their native place and push them in a path of impoverishment. The rehabilitation and resettlement therefore is the biggest issues in such projects. Such issues are global in nature and the India in general and the Himachal Pradesh in particular are also undergoing extreme traumatic situation. For example the Pong dam in Himachal Pradesh is one of those mega developmental projects in which a large number of people were displaced from their native place and suffered a lot because of poor rehabilitation policy. Displacement resulted threat to the psychological, physical and social wellbeing. According to Sapkota (2001) displaced families are endure from decreased lands and trees, agricultural production and number of livestock including risk of joblessness, homelessness and house reconstruction problems as well as risk of marginalization increase their level of anxiety. Displacement leads to tension of present and future in the displaced people. Pirta (2003b) in Himachal
Pradesh found that displacement as deleterious for their mental health. He also revealed that insecure physical settings, acculturation and separation from place of attachment increase their anxiety.

Similarly Fazel, Wheeler, and Danesh (2005) found that displaced people suffer from stress and anxiety episodes. The study of Schmidt, Kravic, and Ehlert, (2008) found that IDPs have higher PTSD symptoms, externality of control attribution and perceived incompetence, and lower on self-esteem. Jan, Louise, Maria and Seven Erik (1996) found that the impact of migration status on exposure to violence, sense of coherence, acculturation status, sense of control over one's life, economic difficulties, and education, as well as on psychological distress like loneliness. Bader, Sinha, Leigh, Goual, Andrews, Valeeva, Sirois, and Doocy (2009) found that displaced population face extreme threats to their psychological well-being, mental health problems, such as loneliness, depression, anxiety and post-traumatic stress disorder. According to Cao, Hwang, and Xi,Juan (2012) displacement in China has caused loneliness, depression and self-rated health problem including changing social integration, socioeconomic status, and community resources problems.

The study of Thapa and Hauff (2012) found that the displaced people suffered from self-reported health, depression, and anxiety. Fazel, Reed, Panter-Brick and Stein (2012) found individual, family, community, and societal risk and protective factors for mental health in children and adolescents who are forcibly displaced to high-income countries. Vries (1999) concluded that the refugee/displaced persons experience traumatic experiences, negative feelings, and poor living conditions that in term causes mental and physical health problems. Porter and Haslam (2005) conducted a meta-analytically study and found that the refugees living in institutional accommodation, experience restricted economic opportunity, and conflict that has worst out comes on their health. According to Parasuram (1993) and Ganguly-Thukral (1996) the women and children are more vulnerable to the negative impacts of large water management projects. Carol (2001) also found that the displaced women, men, and children in the community experience increased social, economic, cultural, and psychological stresses.

In his study Goessling (2010) found that there are massive human rights violations on the large scale on up on tribal and rural population in the name of
progress. Mega development projects like multipurpose river dams generate little benefit for the relatively better off sections of population while produced marginalization at every footstep (Oommen, 2004, 2006, 2008). Similarly, the study of Zinta, (2008) found that the scheduled caste and females in general as well as the females of lower castes in particular are worsely affected by the developmental projects. Further, Roberts, Ocaka, Browne, Oyok, and Sondorp (2008) found that the displaced people experience exposure to traumatic events and deprivation of essential goods and services.

The study of Brody, (2012) also revealed that the hydroelectric power although is often considered a safe and clean source of energy yet is detrimental to environment and ecosystems. Thompson (2012) found that Dam has both positive and negative socio-economic impacts. It may be associated with the quality of life as well because it not only has lightened the world but also has enlightened the community. But Mishra (2002) found that dam tend to improve the quality of life of poor and marginalized people and specially the landless people. Similarly, Tiwari (2006) also found that the hydel project has benefited the displaced people, because it reduced the sex ratio, improves the literacy of female, and scheduled castes as well as tribal males and females. Tiwari and Zinta (2007) found that the socioeconomic conditions of the project-affected families were noticeably at higher side in comparison to other region/districts of the State, it improved the quality of life of the affected people.

The study of Ogaboh, Akpanudoedehe and Ushie (2010) revealed that the resettlement of Bakassi people significantly influenced their occupations, culture and accommodation pattern. In her study Carla (2010) concluded that the displaced people here have suffered here from loss of community, livelihood, health and mental health problem parameters. In a study Zinta and Tiwari (2008) has found that the project affected families were poor in quality of life, high on displacement stress, less on happiness and mental health. Deresky (2006) believed that displaced people face family problems which, could result from homesickness and even may leads to the breakup of the family. Zinta (2008) found that displaced people reported poor wellbeing, greater neuroticism, and higher state anxiety as compared to their counterpart normal subject. Further, the displaced scheduled castes showed more problem and psychological vulnerabilities as compared to the displaced general caste
people as well as comparison groups. Hamid, Musa and War (2010) found the effect of conflict on mental health among IDPs. They found high prevalence of PTSD and general distress among IDPs.

The study of Chandel (2003) found that displaced rural population suffered from psychological aspects due to non-availability of common land, lack of fertile land, deterioration social support system, negative attitude of host population, apathy of authorities, and loss of identities and general helplessness. World Health Organization stated that there are approximately 80 million refugees and displaced person who is internally displaced exists mostly in low income countries (WHO, 2001) experience more anxiety and low quality of life. Sharma (2005) reach at a conclusion that the effect of displacement was significant for depression, state anxiety, general wellbeing and quality of life in the oustees of Bhakra dam. The above mentioned studies were kept in mind by considering it as a base for forming hypotheses.