

**An Assessment of Seechewal
Initiative in the State of
Punjab, India: An example of
Community-based Conservation?**

By
Manpreet Nigah

A Thesis
Submitted to the Faculty of Graduate Studies
In Partial Fulfillment of the Requirements
for the Degree of

Master in Natural Resources Management.

Natural Resources Institute
Clayton H. Riddell Faculty of Environment,
Earth and Resources
University of Manitoba,
Winnipeg, Manitoba.
Canada

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MASTER OF NATURAL RESOURCES MANAGEMENT

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ABSTRACT

Community-based conservation (CBC) is a concept which can be described as the conservation of biological diversity, wildlife or any other natural resource based on the involvement of local communities in the decision-making process. As a step towards studying this phenomenon in-depth, research entitled "An Assessment of Seechewal Initiative in the State of Punjab, India: An example of Community-based-conservation?", was undertaken by me and examined in terms of a community-based conservation initiative. The main objectives of this research were to describe and understand the Seechewal initiative and to determine its participatory nature. The research also assessed the initiative in terms of environmental, economic and social dimensions, and examined the opportunity of extending the positive impacts of this initiative to other areas in Punjab. Further methods for scaling-up this initiative by other communities were also examined.

The study concluded that a renewed focus on the management and conservation of natural resources by communities is emerging. Communities are being empowered directly or indirectly to manage their surroundings. The process could be self-initiated by the community or triggered by government, an NGO; or any other agency. The Seechewal movement is a religious and environmental movement with origins in the district of Jalandhar in the state of Punjab and it has spread to adjoining villages. The movement has multi-faceted components ranging from the construction of roads, laying of sewerage systems, provision of a water supply and cleaning the river Kali Bein.

The environmental, economic and social impacts of the Seechewal initiative are visible, as they have not only helped improve the living conditions of the residents but also their general quality of life. In addition it has influenced on the social structure of the community, with community united into one whole unit where people are motivated, working together for one cause and overcoming their differences in terms of caste, creed, and economic status.

Agriculture, being the backbone of the economy in the area, has benefited greatly due to an increase in the normal flow of the Kali Bein. The river is flowing effectively after it was cleaned up with the help of community efforts. The scaling-up of this initiative is demonstrated by having the principles, technologies and the processes that were first tested in village Seechewal, adopted elsewhere in the region. The Seechewal initiative has been mentioned in both local and international press and by the former president of India. Dr. A.P.J. Kalam has referred to it numerous times during his speeches on important occasions both within and outside of India.

Certain limitations of this study have also been identified as its scope was limited to some extent. Areas of further research have also been identified.

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I dedicate this thesis to the loving memory of my mother whose blessings are always with me.

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Glossary of terms

1. Beas River The **Beas River** is the second easternmost of the “five rivers” that give the Punjab its name. The river rises in the Himalayas in central Himachal Pradesh, India, and flows for some 290 miles (470 km) to its confluence with the Sutlej River in the western Punjab state. The river was also known as *Arjiki* or *Vipas* to the ancient Indians and the *Hyphasis* to the Ancient Greeks.
- 2.. Doaba **Doaba** is the name of the region in Punjab between the Sutlej and Beas rivers. *Doab* is a Persian term meaning “[between] two waters”. It comprises the districts of Nawan Shahr, Hoshiarpur, Jalandhar and Kapurthala in Punjab.
3. Hari-ke-Pattan, also known as Harike Pattan Harike Pattan is one of India’s six “lungs”. The wetlands came into being in 1952, when a barrage was constructed downstream near the confluence of the rivers Sutlej and Beas.
4. Guru Granth Sahib The holy book which the Sikhs consider to be their virtual Guru. It spans 1430 pages and contains their teachings and the actual words spoken by the Sikh Gurus and various other saints.
5. Gurudwara Sikh place of worship; may be referred to as a Sikh temple.
6. Green Revolution The Green Revolution is used to describe the transformation of agriculture in many developing nations that led to significant increases in agricultural production between the 1940s and 1960s. This transformation occurred as the result of agricultural research, extension and infrastructure development.
7. Kali Bein Name derived from the Sanskrit word “Veni” which means a water body or particular stream. Kali Bein is river which is 160 km long, and starts from the village of Dhanoa in the Hoshiarpur district in the state of Punjab. Kali Bein flows through several villages and cities and joins the confluence of the rivers Beas and Satluj.

- | | |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8. Kar Seva (Kar Sewa) | Kar Seva in Sikh belief is to perform selfless service, without any thought of reward or personal benefit. All Sikhs are encouraged by their Guru (Shri Guru Granth Sahib) to perform Seva or selfless service. This is not only considered good for community relations but also good for moral upliftment. |
| 9. Kharif crop | The Kharif crop is the crop harvested in autumn in India. Kharif crops are usually sown with the beginning of the first rains in July. (Examples are Maize, rice, pulses) |
| 10. Niramala sect | An ascetic order of the Sikhs, a religious group of India. At first Nirmalas ("those without blemish") wore only white garments but later they adopted the saffron robes worn by Hindu ascetics and used for other practices, such as birth and death rites. |
| 11. Rabi crop | The Rabi crop is harvested in the month of April and sown at the onset of winters. (Examples are wheat, grams, oilseeds.) |
| 12. Sutlej river | Sutlej is the longest of the five rivers of the (combined) Punjab state. |
| 13. Sant | Sant is used in India for the bhakti saint poets of the Marathi and Hindi speaking areas. It is derived from the Sanskrit <i>sat</i> , its root meaning "one who knows the truth". |
| 14. Water logging | Ground may be regarded as waterlogged when the water table of the groundwater is too high to conveniently permit an anticipated activity. |

CHAPTER 1: INTRODUCTION

1.0 Background

The world is currently undergoing many problems related to the state of the global environment. Principal among them are the exhaustion of accumulated resources such as fossil fuels, soil and minerals, and the use of renewable resources above the productive capacity such as fresh water, forests and fisheries to name a few (Brebbia et al., 2007). This situation is particularly acute in many developing countries, where the livelihood of the rural poor is based primarily on the use of locally available natural resources (Salafsky & Wollenberg, 2000). India is a unique mosaic of biological, cultural, physiographical and climatic diversity which covers a land area of 329 million hectares. It is home to more than one billion human beings. According to Indian economists, approximately one-third of her population lives below the poverty line, and the degradation of natural resources is one of the causes of prevalent poverty amongst her population (Kothari et al., 1998).

In such conditions, community-based conservation (CBC) initiatives can play a very important role in bringing individuals and organizations together to work towards achieving desired environmental goals. A community working together in such initiatives exerts pressure on government agencies in many parts of the world. Community-based conservation has recently emerged as an innovative institutional response for meeting the seemingly unrelated goals of poverty reduction and biodiversity education (Shukla, 2004). It has become an important approach to integrated conservation and development, as it is the local people who bring about sustainable development and manage their natural resources. There can be no change for the better

without involving the local people, mobilizing their capacities and energies, and enhancing their knowledge and skills (Feyerabend et al., 2000).

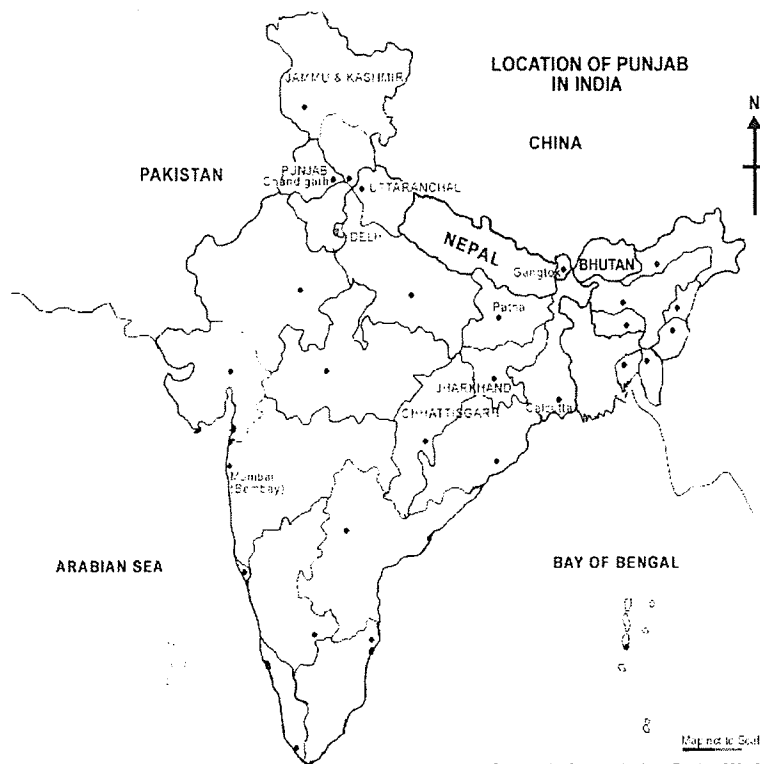
Community-based conservation has already gained a unique position the world over despite numerous challenges (World Resources Institute, 2001). The success is based on the premise that CBC initiatives are bottom-up (or grassroots) activities. They are broadly based on two guiding principles. The first is that people who participate in the decision-making process will be more inclined to implement any resulting solution. The second is that participants, if provided with sufficient information and support, are capable of determining for themselves what the most appropriate solutions are. People are usually proactive in protecting things valuable to them. It is in this context that biodiversity conservation initiatives should be understood. Community-based Conservation starts from the most fundamental principle: individuals will take care of those things in which they have a long-term sustained interest (Forgie et al., 2001).

India's economy has always been predominantly rural in character. This is reflected by the fact that 89 percent of the total population lived in villages in 1901, and after more than 100 years, the proportion is still high at 70 percent. By the end of the 21st century it is quite likely that at least 50 percent of India's population will still be living in rural areas. Furthermore, about two-thirds of her workforce is engaged in agriculture and allied activities which contributes to about 28 percent of India's GDP (Mallineni, 2002). For centuries agriculture has been the mainstay of India's economy in states such as Kerala and Punjab. In Punjab, which is situated in the northwestern part of India (see Map 1), about 70 percent of people are engaged in agriculture. Compared to a national average of 51 percent, Punjab has 85 percent of its area under cultivation. The impact of

the Green Revolution has perhaps most affected this state. It has led to a highly chemicalized, mechanized and resource intensive agricultural system, the price of which Punjab is paying in terms of ecological, environmental, social, cultural and economic loss (Kohli and Singh, 1997).

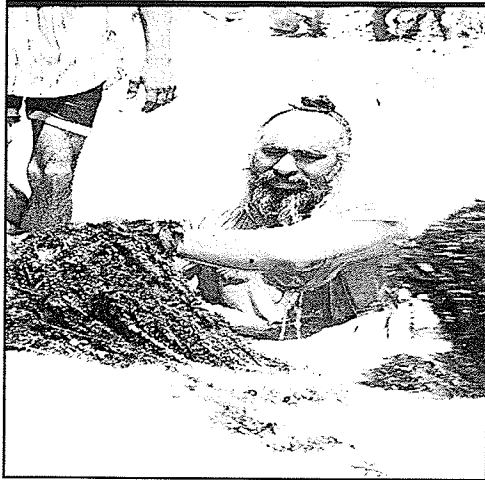
Diverse historical events, frequent reorganizations, overexploitation of soil and water resources for agriculture, increased urbanization and industrialization have contributed to a loss of habitat and biodiversity in Punjab. Since its reorganization, first in 1947 and subsequently in 1966, the state has been forced to use its natural resources intensively which has resulted in tremendous progress, especially regarding food (Punjab Environment Status Report, 1995).

This overuse of resources has also adversely affected the ecological balance. The natural ecosystems of Punjab, rich in animal and plant life, are also facing problems of overexploitation and degradation (Tiwana et al., 2005). Despite the presence of various boards and corporations which are responsible for implementing many environmental legislations and act as regulatory agencies at the state level, Punjab has lagged behind in building up basic infrastructure facilities for dealing with problems arising out of environment degradation. With such a scenario a new trend in the conservation and management of natural resources is emerging where local communities are empowering themselves to manage their surroundings. This could be a community-initiated process or triggered by some individual(s). In the context of ineffective environmental management measures by regulatory bodies, the role of communities in conservation measures and the environmental, social and economic dimensions of such measures need to be assessed.

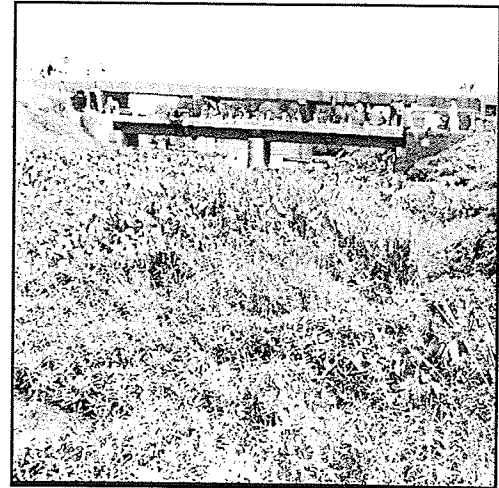


Map 1 Location of Punjab in India.

These problems have spawned a large number of self-organized community-based conservation initiatives, which have been fairly effective in managing the rural environment through the participation of local people. The Seechewal environmental initiative is an example which began in 1991 and continues today. The initiative was started under the leadership of Sant Balbir Singh Seechewal (also referred to as Sant Seechewal) (Plate 1) and involves undertaking a number of developmental works in the village of Seechewal and the adjoining villages, and also cleaning the Kali Bein, a main rivulet flowing through this area. People at the community level who are not associated with this initiative are interested in better understanding the factors that led to the development, growth and implementation of this initiative over the past 15 to 16 years.



**Plate 1. Initiation of the initiative
by Sant Balbir Singh Seechewal**



**Plate 2. Kali Bein clogged with
vegetation**

1.1 Purpose and objectives

The purpose of this research is to describe and assess the Seechewal environmental initiative in the state of Punjab. Specific objectives of the research are:

1. to describe and understand the Seechewal initiative,
2. to identify the environmental, social and economic impacts of the Seechewal initiative,
3. to determine the participatory nature of the Seechewal initiative in Punjab, and
4. to identify methods for scaling up this initiative by other communities elsewhere in Punjab.

1.2 Overview of methods

In carrying out the research, a qualitative research methodology was used. Qualitative research focuses on the phenomena that occur in natural settings and involves studying those phenomena in all their complexity. In qualitative research, the researcher's ability to interpret and make sense of what is visible is very critical for understanding any social phenomenon. While carrying out qualitative research, some facts may be viewed by

different perspectives, depending on the individuals carrying out the research, with each perspective having equal validity or truth (Leedy & Ormrod, 2005). An overview of the research methods is given below.

1. Primary research includes interviews and a review of existing literature related to the Seechewal initiative in order to compare developments before and after the initiative began. This involved carrying out a literature review of the various documents relating to the historical aspects as well as a general literature review of government documents and publications by various organizations.
2. Focus groups and interviews were conducted with the residents of the affected area.
3. Policy research included an examination of the state environment policy and its application to the rural areas.
4. Direct observations were recorded when those villagers who were directly affected participated in various activities.

1.3 Organization of the study

The thesis is organized into six main chapters: Chapter 1 is the introduction. Chapter 2 presents a review of the literature that helps to understand various concepts associated with community-based conservation and cites some case studies in south Asia as well as India. It focuses on preparing the conceptual and theoretical base of the research and analysis of its outcomes. Chapter 3 outlines the methodological approach to the research and various methods and tools used in the study. It discusses the guiding principles, sampling and sources of data collection. It includes the conceptual frameworks used, various participatory methods and tools used in collecting data, and the process of analysis following fieldwork. Chapter 4 begins with a description of the self-organized

CBC arrangement in the study village. It then presents an analysis of the outcomes of the study in relation to the three study objectives. In Chapter 5 a data analysis of salient features of the Seechewal initiative and its results have been discussed based on various parameters which have been broadly categorized into social, economic and environmental impacts of the initiative.

In the concluding chapter, the main findings based on the specific objectives of the study have been discussed. Limitations of this study along with areas of further study have also been discussed.

CHAPTER 2: COMMUNITY BASED CONSERVATION IN INDIA

2.1 State of Environment in India

Since it gained independence in 1947, India has made remarkable progress in the areas of food production, industrial development, energy generation, socio-economic conditions and other fields. India is a biomass-based country where about two-thirds of the population depends on agriculture for subsistence; thus the country is self-sufficient in food. India is among the ten most industrialized nations of the world and rapid population growth has been exerting heavy pressure on her finite natural resources. While the annual growth rate of India's population is a major concern, rapid economic growth has led to many undesirable consequences and unanticipated environmental problems (State of Environment Report-India, 2001).

The quality of the environment and ecosystem in India is declining at an alarming rate as the country is trying to bridge the gap between the status of a "developing" and "developed" nation in terms of industrial development and the economy. After independence in 1947, India implemented five-year plans as her economy is based on the concept of planning. This is developed, executed and monitored by the planning commission of India (Sinha, 1990). At present the 11th five-year plan is being implemented. These plans have resulted in India achieving the unique distinction of a developing country amongst the developed countries and achieving the status of a developed country amongst the developing countries of the world. India is a land where centuries of different civilizations and development co-exist: slums next to skyscrapers, bullock carts beside jet planes, cow dung with atomic energy, sickle with harvester and

tribal communities with present-day modern man. This co-existence also has its side effects on the quality of the environment and impacts the ecosystem (Sinha, 1990).

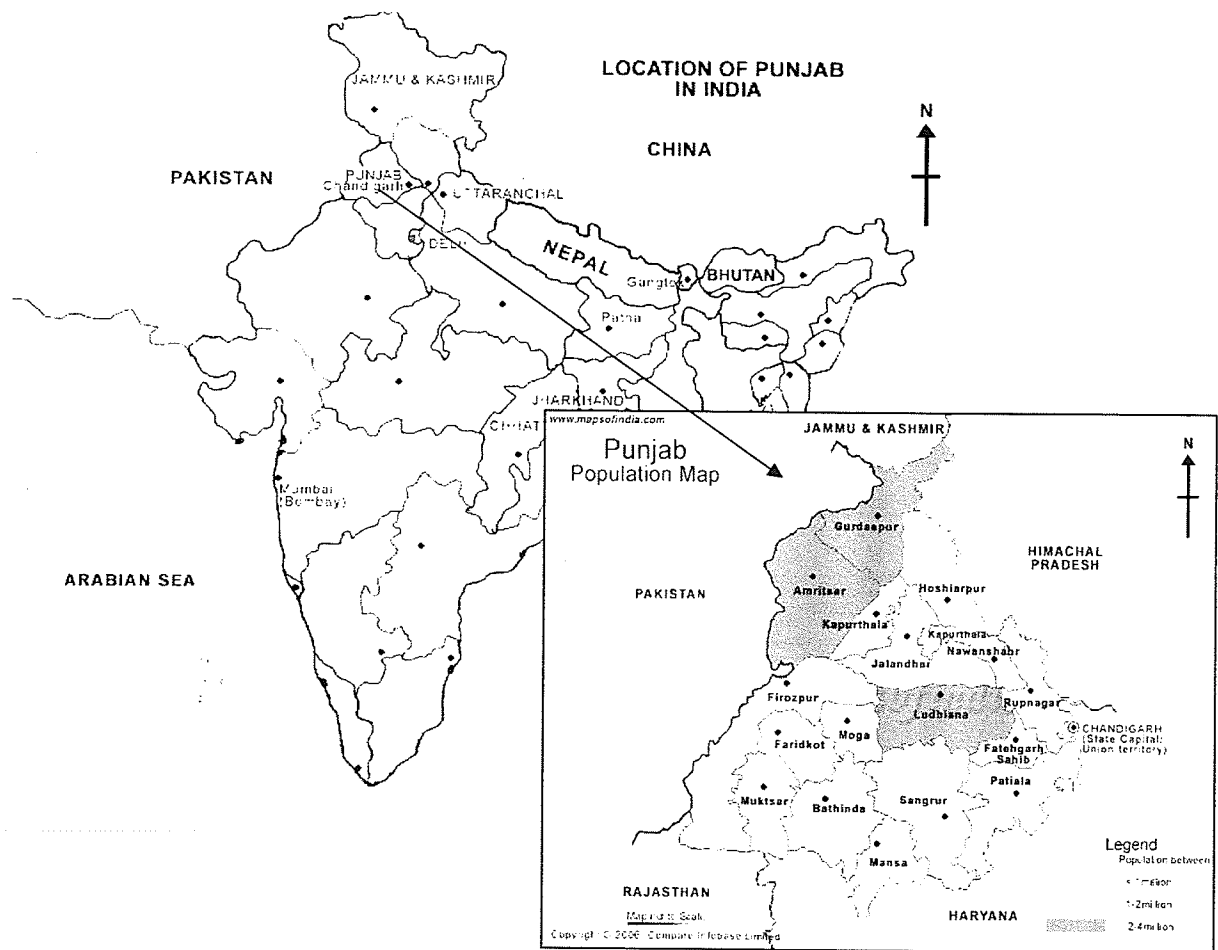
In pre-independent India, the basic philosophy of life was to live in harmony with nature. In post-independent India this philosophy has undergone a massive change. Now people live in “conflict” with nature, leaving behind the sayings in the ancient Indian scriptures (Upanishads) which mentioned “the whole universe together with its creatures belongs to the Lord (nature)” (Sinha, 1990).

Industrialization and a population explosion have resulted in an array of problems which have caused a chain reaction of environmental problems. These problems can be classified in many ways, with the basic division being pollution and resource depletion. Pollution comes from the injection of wastes into the atmosphere from production and consumption activities. Resource depletion refers to problems with the use of renewable resources such as forests, fisheries and biodiversity, and problems associated with non-renewable resources such as coal, oil and minerals (Murty et al., 1999).

2.2 State of Environment in Punjab

Punjab is the fourth smallest state of India with an area of 50362 sq km, and is located between 29⁰ and 32⁰ N latitude and 74⁰ and 77⁰ E longitude. In terms of physiography, it is situated in the northwestern part of India between the rivers Ghaggar and Ravi. The state consists of 17 districts, 12,413 villages and 143 towns. The word Punjab is a compound of two Persian words: panj (five) and ab (water) (see Map 2). Historically this signifies the land of five waters, or rivers. Owing to territorial changes, however, only three of the rivers (the Ravi, Satluj and Beas) currently lie within the boundaries of Punjab.

Agriculture, the backbone of Punjab's economy, covers 84 percent of the state's area. Kharif and Rabi are the two main crops harvested in early winter and summer respectively. Over the years the cropping pattern has changed considerably due to the green revolution which has resulted in an emphasis on intensive monoculture farming. This green revolution has transformed the state's agriculture to a great extent (Tiwana et al., 2005). The introduction of high-yield varieties of crops has led to an intensive use of fertilizer and pesticide. Meanwhile the use of traditional organic matter has decreased with cattle dung being increasingly used as a fuel in rural areas (Tiwana et al., 2005).



Map 2: Maps of India and Punjab.

(Source: <http://www.mapsofindia.com/maps/india/india-political-map.htm>)

The rate of chemical usage in crops is one of the highest in India. Although the agriculture department of the state and allied institutions assist farmers in determining the dosage suitable for the crops, concrete data with regard to the judicious use and timely application of fertilizer is not available. Large quantities of fertilizers remain unavailable to farmers, and due to untimely applications, they leach into the groundwater or are lost as runoff to surface water bodies. Beside fertilizers, a large amount of pesticides and herbicides are extensively used. Most of these are persistent toxic chemicals which accumulate in the body tissues at various trophic levels in an ecosystem. This accumulation results in an ecological amplification of these chemicals. The use of pesticides has adversely affected non-target flora and fauna, consequently affecting biodiversity and ecosystem stability (Tiwana et al., 2005).

The state of air pollution in Punjab is a result of industries, vehicles, unplanned development of urban areas and agricultural activities. Rapid industrialization of the state has spawned a manifold increase in the number of medium and small-scale industries. These industries contribute immensely to the increase in the concentration of suspended particulate matter, like oxides of nitrogen and sulfur, organic compounds and other pollutants in the air. Agricultural activities also have an adverse impact on air pollution in Punjab. The stubble left over after harvesting is burnt instead of mulching it to prepare the field for next crop. An estimated 70 percent of the rice straw and 30 percent of the wheat straw is burned in the field, especially during March and April and October and November, causing more air pollution problems. This also kills soil microflora and microfauna (Tiwana et al., 2005).

Punjab is endowed with rich water resources. Besides major rivers flowing through the state, it is home to three internationally important wetlands, several canals, small rivers, ponds and reservoirs. Over time the water requirement has increased due to the increase in agricultural activities, population, urbanization, industrialization, and more demand in the industrial and domestic sectors. This has resulted in increased pollution of the surface and underground water resources of Punjab, both in physio-chemical and biological terms. Lack of proper sewage collection and treatment facilities in most of the major towns and the discharge of untreated sewage into the water bodies have also added to the pollution load (Tiwana et al., 2005). Punjab's wetlands are facing problems of siltation, weed infestation, encroachment and pollution from non-point sources. Incidences of waterborne diseases during the summer months especially are quite common.

Punjab has a very small area of forest cover (approximately six percent of the total geographical area). With about 84 percent of land area under agriculture, the crop land ecosystem forms a dominant ecosystem. The state was known to harbour genetic variability; however, over the years this has been reduced due to changes in cropping patterns and a higher dependence on certain high yielding varieties of crops (Tiwana et al., 2005).

Punjab has embarked on the road to progress with rapid industrialization and urbanization, which has resulted in raising the per capita income. At the same time, it has also caused the state to face a wide spectrum of environmental problems.

2.3 State Policy on Environment and Development

The Government of India has formulated legislation, regulations, and policy instruments to address matters concerning protection and improving the environment, and to safeguard the forests and wildlife of the country. In the Constitution of India it is clearly stated it is the duty of the state to “protect and improve the environment and to safeguard the forests and wildlife of the country”. It imposes a duty on every citizen “to protect and improve the natural environment including forests, lakes, rivers, and wildlife” (TERI, 1998). The major legislations and policy instruments formulated are listed below.

- **The Environment (Protection) Act 1986** authorizes the central government to protect and improve environmental quality, control and reduce pollution from all sources, and prohibit or restrict the setting and/or operation of any industrial facility on environmental grounds.
- **The Environment (Protection) Rules 1986** lay down procedures for setting standards of emission or discharge of environmental pollutants.
- **The Water (Prevention and Control of Pollution) Act 1974** establishes an institutional structure for preventing and abating water pollution. This act establishes standards for water quality and effluent. Polluting industries must seek permission to discharge waste into effluent bodies. The Central Pollution Control Board (CPCB) was constituted under this act.
- **The Air (Prevention and Control of Pollution) Act 1981** provides for the control and abatement of air pollution. This act entrusts the power of enforcing this act to the CPCB.

In addition to these regulations and policy instruments, Punjab's Department of Environment has prepared an *environment policy* to express concern and commitment of the government on environment protection. This document is a sequel to the *National Policy Statement on Environment and Development* prepared by the Ministry of Environment and Forests, Government of India (Punjab Environment Status Report, 1995). The draft policy document identifies constraints for actions and an agenda for future actions. The primary purpose of the policy statement is to re-enforce traditional ethos and build a conservation society, which is efficient in the use of natural resources and guided by the best available scientific knowledge. The agenda for action includes the development of general environmental guidelines with the objective to pursue total ecosystem conservation. Further sustainable and equitable use of resources, prevention of deterioration in life support systems, and restoration of ecologically degraded areas for the conservation of biological diversity are also on the agenda. To effectively implement the policy in Punjab, general environmental guidelines for various development sectors have been prepared and form the second part of the state policy (Tiwana et al., 1995). Included amongst various actions envisaged is "ensuring public participation in implementation of development programmes" (Mallineni, 2002). This has led to conditions favourable for the initiation of CBC initiatives in the state.

2.4 Community-based Conservation in Perspective

A massive change is taking place in conservation policies and practices across the world. This includes a shift from standardized policies and programs initiated by centralized and urban-based agencies to decentralized, site-specific, community-based activities. Community-based conservation can be described as conservation of biological diversity,

wildlife or any other natural resources based on the involvement of local communities in the decision-making process (Kothari et al., 1998). Such initiatives exclude those conservation attempts by officials or private agencies which may have no participation of local people, or have some participation but only in the form of labour. On the other hand, such initiatives might include a whole range of situations: from official/private agencies predominantly retaining control but consulting with local communities in matters pertaining to planning or implementation, to communities who are completely in control (Kothari et al., 1998).

2.5 Why Community-based Conservation?

2.5.1 History of Conservation

Since time immemorial, rural communities in India have been largely dependent on natural resources for their day-to-day survival. Even now this dependence continues to grow for several million forest dwellers, fisher folk, nomads and others. This process has led to the development of an intricate and diverse practice of managing natural resources. Innumerable examples can be found of conservation and sustainable use by self-restraint and abstinence based on aesthetic, religious, or practical considerations and beliefs (Kothari and Das, 1998).

There has always been a link between spirituality and conservation in India. Through religion, folklore and tradition, the village communities had drawn a protective ring around the forests. In ancient times, hilltops were often dedicated to the local deities and the trees around the area were regarded with great respect. Care was bestowed upon them by successive generations of local residents (Guha, 1999). In and around Eastern Kumaon in the Himalayas, the temples had deodar plantations which had become

naturalized some way east of the trees' natural habitat. Temple groves of deodar varied in extent from a few trees to woods of several hundred acres. In fact, planting of such groves was regarded as a "work of great religious merit". In parts of Tehri in the Himalayas, even today leaves are offered to the goddess known as Patan Devi (goddess of leaves), one of the several examples of the association of biodiversity conservation with gods (Guha, 1999). This relationship of nature with human has been manifest in a spiritual reverberation of experiences which have been derived from a vision, inspiration or just the simple fact of being there in the presence of mighty nature. Bernbaum (1997) describes one such encounter as "mountaineers regard mountains as a source of blessings, many of them spiritual in nature. From contact with forest and stream, rock and snow, come health, good spirits, and peace of mind, as well as a fresh perspective that can lead to new ideas and ways of seeing things. John Muir, a passionate advocate of mountaineering, urged others to seek such blessings in mountain heights".

While sacred groves testified to the role played by traditional religious beliefs in the preservation of nature, in other instances it was informal management practices that regulated the utilization of the forest produce by the community.

Such practices have been categorized by Gadgil and Guha (1992):

- Community-imposed restrictions on the amount harvested which is subject to the density of the resources available.
- Religious protection to species or patches leads to incidental conservation.
- Prohibiting hunting methods that were exhaustive or had a debilitating effect on the species.
- Protecting certain life stages critical to "population replenishment".

- Disallowing certain groups from resource use on the basis of age, sex and social standing.
- Regulating methods, types and areas of harvest.

A variety of reasons are responsible for a shift towards CBC. It is perhaps being realized all over the world that central agencies are not simply able to carry out the task of conservation. Reasons include being under-staffed, under-funded, ill-trained and ill-equipped to handle the threats that species and habitats face (Kothari et al., 1998). In fact, because of their day-to-day interaction and dependence on the environment, local people are often at forefront of protests against degradation caused by either outside commercial interests or other sources which may be far away (for instance, wastewater being discharged from an urban area) (Kothari et al., 1998).

Core interests tend to take a short-term view of resource exploitation. Governments have protected forests less well than the communities. The existence of corrupt politicians, forests officials and contractors are not universal but still rather common. The normal process of project appraisal whose aim is to maximize profits with a short-term view is also common. In contrast, poor people with secure ownership of land, trees, livestock and other resources can be and often are tenacious in their retention of assets and far-sighted in their investments (Pitt, 1998).

The political support of conservation is declining in many countries, especially where it is seen to be a hindrance to poverty alleviation or even developmental aspirations, or where it hampers the activities of powerful elites. CBC is based on the premise that conservation and development can go hand-in-hand, provided the goals of both are the same (Berkes, 2004).

According to Hiremath, "Nature can never be managed well unless the people closest to it are involved in its management and a healthy relationship is established between nature, society and culture. Common natural resources were earlier regulated through diverse, decentralized, community control systems. But the state's policy of converting common property resources into government property resources has put them under the control of centralized bureaucracies, who in turn have put them at the service of the more powerful." In other words decision making is still in hands of a minority, comprised of politicians and top bureaucrats with strong influences from big industrial corporations, large farmers' groups and other privileged sections of society. There is a general reluctance of the politically powerful, from village to the national level, to give up power and allow for substantial decentralization. This is one of the key challenges in community-based natural resource management (Kothari et al., 2000).

Dr. James D. Wolfensohn, President of the World Bank, describes the real essence of the decentralization of power in his foreward to *"Entering the 21st Century: World Development Report, 1999/2000"*;

Localization is praised for raising levels of participation and involvement, and providing people with a greater ability to shape the context of their own lives. By leading to decentralized government where more decisions happen at sub-national levels, closer to the voters, localization can result in more responsive and efficient local governance.

Chinese experiences show that "communes" have played a very important role in rural social transformation through the social process of rural institutional change, accompanied by technical changes as well. Not only did they help in agricultural

development but they also dramatically reduced rural poverty from about one-third of the rural population in 1978 to about eight percent in 1996. This is explained by rapid, broad-based rural development, encompassing farm as well as non-farm sectors (Economic and Social Commission for Asia & Pacific (ESCAP), United Nations, 1996). This also holds true in the case of communes or communities engaged in the conservation of natural resources all over the world.

There are numerous examples of CBC around the world (Pearl, 1994). In Papua New Guinea, the Crater Mountain Wildlife Management Area project combines tourism, research and conservation with the development of alternative methods for improving economic returns from subsistence farming. The project aims at designing and introducing environmentally friendly and more efficient farming methods as well as developing small-scale businesses compatible with wildlife conservation. Employment with research projects, ecotourism and scientific tourism generates other income. The goal of the project is to ensure that the local people's strong pre-existing conservation values are integrated into the area's economic development rather than through the process of change. The Research and Conservation Foundation (RCF) of Papua New Guinea, which was formed in 1986 to protect the rain forest flora and fauna throughout the country, has taken on the development of the Crater Mountain Wildlife Management Area with the aim of gaining the experience and expertise needed to develop CBC-based conservation programs in other parts of the country (Pearl, 1994).

People around the globe are demanding a greater voice in the decision-making process, and are aspiring to re-establish some control over the resources which sustain their lives

and livelihoods. As of necessity, the move towards CBC is therefore a question of fundamental human rights and social justice (Kothari et al., 1998).

2.6 Community-based Conservation in South Asia

South Asia is the world's most populated subcontinent and perhaps is the most culturally diverse. Though it covers less than three percent of the earth's surface, it contains more than eight percent of its biological diversity. The region also displays a full range of social, economic and developmental "types": from the most so-called "primitive" tribes to ultra-modern urbanites; from the most desperately poor to some of the world's richest families; from completely hunter-gatherer to predominantly hi-tech communities (Kothari, et al., 1998).

Some of the earliest civilizations flourished in the south Asian region though human beings probably first emerged in Africa. Tribal societies were already well-established in these regions before the invasions from the west brought in races and ethnic communities that now dominate most parts of the region. Many of the world's major organized religions originated here, including Hinduism, Sikhism, Buddhism and Jainism. Islam and Christianity have flourished here too. South Asia was also the global hub of sophisticated agriculture, industry, trade and arts. It was here that many classical medicinal traditions currently being promoted worldwide as "alternatives" to conventional "western" medical practices originated, not to mention the myriad folk and tribal traditions that use several thousand species of plants and animals for all kinds of effective remedies (Kothari et al., 1998).

Three of the world's 18 biodiversity "hot spots" are also situated in South Asia, including the eastern Himalayas and Western Ghats in India, and southwest Sri Lanka containing

5,600 endemic species of higher plants. Varied ecosystems are covered in these hot spots, including a large expanse of forest and a very large marine area. However, combinations of factors have severely threatened this biological diversity. This includes large-scale agricultural expansion in the last two to three centuries, resulting in the clearing of forests, encroachments into grasslands and filling in wetlands. The colonial period through which many countries of this region endured also witnessed an attack on the natural ecosystems, in particular on forests that were used by the colonial powers as a source of revenue and raw materials (Kothari et al., 1998).

The seven south Asian countries (namely India, Pakistan, Bhutan, Nepal, Bangladesh, Sri Lanka and Maldives), being diverse in different ways, have many areas of commonality. This includes a common colonial past, a great deal of shared biodiversity, and similar current natural resource management regimes. It is also worthwhile to compare the south Asian region with the rest of the world. In Africa a major difference is its wildlife management seems to refer to the use and management of large mammals and birds. In the south Asian region, there is a greater interaction with wild plants rather than wild animals. However, as it is in Africa, both are widespread in some regions. There is also a great emphasis on habitat management and conservation by both government and NGOs and also by communities in these countries. In traditional communities there is a considerable overlap between the management of wild and domesticated biodiversity resources. Following are a few case studies of community- based conservation initiatives in south Asia.

2.6.1 From Alienation to Ownership: Hushey Valley Conservation Area, Pakistan

Hushey Community Conservation Area is in the Ghanche district of Baltistan in northern Pakistan. This area is famous for its mountaineering and trekking opportunities and is a candidate for a World Heritage Site listing. It covers an area of 800 square km in the Karakoram mountain range. Its ecosystem is one of cold desert, where the average rainfall is less than 200 mm, most of the precipitation being in the form of snow (Raja et al., 1999).

As per the 1995 statistics, the total population of the area is 976, livestock numbers are estimated to be 3360 and the total cultivated land is 240 ha. Islam is the dominant religion; literacy is very low, especially amongst women. The main source of livelihood is a single-crop agriculture and livestock. In recent times ecotourism has become a major source of income. Hushey is one of three villages in the Central Karakoram National Park (CKNP). The national park was declared by the government in 1993 to protect its unique ecosystem (Raja et al., 1999). Hushey Valley has also been declared a Community Conservation Area by the local government. The valley contains prime habitat for snow leopard (*Panthera uncia*) and wolf (*Canis lupus*), and supports a good population of Asiatic ibex. The villagers claim their number have been gradually declining over the last few years, primarily because of hunting by outsiders. These incidents have increased due to the four-wheel-drive road into the valley and the easy availability of firearms. In addition, the ibex habitat is threatened by overgrazing and low productivity of the pastures. The villagers have livestock grazing and property rights, but the declaration of a national park has created restrictions and thus a situation of conflict (Ahmed et al., 1995). Also, the firewood demand by trekkers is reported to have

added to the existing pressure on the resources of the park. Tourism also causes solid waste problems and social problems, such as women not being able to take livestock to their traditional grazing pastures as the trekking routes now encroach on their land.

The responsibility of preparing the management plan for the declaration of CKNP was entrusted to IUCN Pakistan. Based on their previous experiences, IUCN started with consultative workshops which were attended by community representatives of the area, local authorities, NGO representatives and other stakeholders. The resulting management plan was largely based on discussions during this workshop. The workshop strongly recommended participation and benefit sharing. It stressed that such participation should be from the stage of micro-planning at the village level. The Hushey village was selected as one of the pilot projects for this experiment under IUCN's *Maintaining Biodiversity with Rural Community Development Project* (Ahmed et al., 1995).

The objective of the pilot project was to address two main causes of degradation: overexploitation of natural resources for subsistence needs and lack of clear tenure over natural resources. The project also aimed to demonstrate that the conservation of biodiversity could be achieved by providing rural communities with technical skills to manage wild species and habitats for sustainable use. The Village Conservation Committee (VCC) were formed as a subgroup of the Hushey Village Organization (HVO) and was responsible for making decisions regarding natural resources, control of poaching and other concerns (Ahmed et al., 1995). The VCC also selected a few individuals who were trained by the IUCN staff as Village Wildlife Guides (VWG). The trained staff was responsible for monitoring, protecting and guiding all wildlife activities in cooperation with the staff of the forest department. A District Conservation

Committee (DCC) was also formed. The Deputy Commissioner of Gangche, members of Aga Khan Rural Support Program AKRSP and IUCN, the president of the VCC and various government officials were included as members. The DCC objective was to act as a local forum where conservation issues could be discussed with the local administration. With technical help from IUCN the ibex conservation plan was also prepared by the HVO. As a result residents stopped taking their cattle to certain summer pastures and ceased raising villagers' cattle from downstream areas, thereby reducing the competition with the ibex (Ahmed et al., 1995).

Provision was also made for the "sustainable" trophy hunting of ibex. It had been agreed that 75 percent of proceeds from such hunts would go to the community and 25 percent to the government. It was also agreed that the number of animals hunted never exceeded sustainable limits. It was ensured that the time of hunting did not clash with that of ibex viewing by tourists. This was aimed at maximizing the potential of ecotourism revenue. In December 1995, sponsorship of the Hushey village and two other villages was auctioned at the annual convention of the Safari Club International in the United States. Under this program the successful bidders agreed to support conservation plans for ibex, with the understanding they would have the first right to trophy-sized animals once the plans were approved by the DCC and government permits obtained. This was aimed at raising money for the community which would be used for various developmental projects, with some funds distributed among the villagers. This decision sent a clear message to the community that ibex conservation could bring economic benefits to all.

Other activities taken on by the IUCN-AKRSP included increasing the productivity of fields and pastures by building water channels which not only led to an improvement in wildlife habitat but also to an improvement in the people's livelihoods. The project also helped women produce and market local handicrafts, and initiated a youth organization to manage tourist waste. In addition to the ibex viewing, opportunities were enhanced for the tourists, and both tourists and trekkers were discouraged from using firewood (Ahmed et al., 1995).

2.6.2 Conservation of Coastal Biodiversity through Enterprise: Rekawa Lagoon, Sri Lanka

Unemployment in the coastal areas of Sri Lanka has made it necessary to bring in vigorous development programs. However, this inevitably leads to adverse impacts on coastal natural resources. Coastal habitats, such as brackish-water mangroves, lagoons, and estuaries have been overexploited, degraded and altered to a high degree. In the northwestern part of Sri Lanka, large-scale destruction and alteration of brackish-water coastal habitats have been catalyzed through their conversion into farm ponds for cultured exported tiger shrimp, *Penaeus monodon*. Effluents from prawn farms pollute brackish waters, making farmed prawns susceptible to diseases like white spot. Such prawn farming techniques have proved time and again not to be sustainable. However, no long-term management measures have been adopted to stem this environmental mismanagement and biodiversity destruction. The high investment return of this export-oriented industry and the short-term profit motives of large-scale farmers have precluded the switch to more environmentally-friendly management methods (Ekaratne et al., 1997).

Resistance from the local community and an innovative program has prevented the picturesque lagoon of Rekawa on the south coast of Sri Lanka from succumbing to the destructive prawn farming. Traditional fisherman of the Rekawa lagoon engage in seven months of shrimp farming using kraal traps (a passive trap made from thin panels of bamboo), cast nets and gill nets with the aid of traditional non-mechanized boats. This close-knit conservative fishing community is predominantly involved in the harvesting of *Penaeus indicus* and lesser quantities of *P. monodon*. Over the last few years the communities around Rekawa have adopted several community-based participatory measures to manage their aquatic resources sustainably. This has been made partly possible through the fisherman banding together to form the Rekawa Lagoon Fisherman's Cooperative Society (RLFCS) (Ekaratne et al., 1997).

The authors of this case study held discussions with the villagers in the 1990s about the possibility of an alternative form of shrimp fishery under the Special Area Management Plan. In 1995 this project - Enhancement of Rekawa Lagoon Prawn Fishery - was sponsored by the Department of International Development, United Kingdom and the Universities of Colombo and Millport (Scotland). The aim of this project was to enhance the available stock of lagoon shrimp rather than use intensive and chemically-dependent farming. Through awareness programs, the RLFCS members learned that good quality lagoon water and conserving ecological linkages were required for rapid shrimp growth, just as the conservation of mangroves was essential for the same result. Growth of shrimp was assessed and measured using experimental fishing methods. Fishing restrictions were imposed so harvesting was carried out when the shrimp were mature and large enough to command a high market price. This project proved to be a boon to

the fishing community. The stock enhancement was economically and socially beneficial. It boosted confidence in the community, leading to an increased social cohesion. This resulted in the social unit being empowered enough to directly solicit the government for grants for developmental works. This empowerment resulted in the establishment of other institutional structures such as Rekawa Development Foundation (RDF).

RDF now serves as a focal point for advancing the socio-economic interests of the community. Various other activities undertaken include the construction of toilets, restoration of water tanks, child care units and the provision of boats. The RLFCs now store harvested shrimp in a community freezer and sell directly to consumers. Previously it was traditionally sold to itinerant middlemen at landing sites. Also, the fishing community has learned about the stock enhancement process and is able to practice it as an environmentally and socially friendly alternative to polluting prawn farms and a way of sustainably managing their own lagoon resources. This whole process has led to an increased conservation of mangroves and the community has become interested in protecting the nesting spots of threatened sea turtles. The destruction of coral reefs caused by brick kilns has been stopped, and the community initiated a change in design of a government-built causeway which was blocking the flow of seawater into the lagoon. There were some major constraints to the project which the project team had hoped the community would be able to work through (Ekaratne et al., 1997).

2.7 Community-based Conservation in India

In today's world, the scientific prescription for conservation of biodiversity is little more than "a rule of thumb". This can be seen from debates such as SLOSS (some large or several small) concerning the feasibility of varying sizes of protected areas. As argued by

Slobodkin (1988, current ecological theory offers little help in arriving at practical prescriptions for resource use and conservation. These prescriptions are best derived from long-term observations of a particular ecosystem. Many such practices have led to a conservation of biological diversity coupled with sustainable harvests of biological resources (Kothari et al., 1998).

Over much of the world today, small-scale horticultural societies have given way to larger-scale agrarian or industrial societies. These changes have been triggered by technological advances permitting higher levels of surplus production, initially through cultivation and later through manufacturing. This allows for the movement of food grains and other commodities over larger distances, thus expanding societal resource catchments. The implication for this expansion is two-fold. People are no longer intimately tied to their own localities, depending largely on the resources they gather or produce with their own labour. The well-being of society is then less firmly linked to the well-being of the ecosystem, thus weakening feedback from the overuse of the resource base. At the same time, local communities are no longer in firm control of their own resources catchments, as resources are processed, transported and traded on larger spatial scales (Kothari et al., 1998).

These circumstances lead to a situation where small-scale homogeneous societies make way for large-scale stratified societies with a stronger centralized state assuming greater and greater control over the resource base at the cost of local communities (Kothari et al., 1998). In the absence of motivation for sustainable use, such societies often indulge in over-harvest, focusing on those resources which are at any given moment the most

profitable. As these resources get exhausted, the pressure shifts to the next available resource. In such societies, technological changes also gathers pace so newer and newer kinds of resources can substitute for the more usable and accessible resources that are exhausted. It cannot be assumed that large-scale societies do not become aware of the possible dangers of overexploitation of resources. When they do, they tend to explicitly state resource conservation as a societal objective and attempt to implement it through centralized regulation by the state machinery (Kothari et al., 1998).

These difficult conditions that the large-scale societies face have led to the revival of interest in CBC practices which had been a characteristic of small-scale societies. This revival is particularly relevant in Indian society, today an intricate mosaic of many smaller groups. For example, some of these groups are hunter-gatherers (e.g., Sentineless islanders in Andamans who remain entirely isolated and self-sufficient); shifting cultivators (like many groups of northeastern India); subsistence cultivators (small holders of rain-fed lands in semi-arid tracts of Karnataka and Andhra Pradesh in southern part of the country); nomadic herders (Gujjars of Himachal Pradesh or Bakarwals of Kashmir in the northern part of the country); practitioners of intensive, irrigated, chemicalized agriculture (many large farms in Punjab); and those in organized services-industries sectors (industrial labour of Mumbai) (Kothari et al., 1998). In such a complex society, many resource-use practices, including community-based conservation practices characteristic of older small-scale societies, still exist (Karve, 1961). The rationale behind the success of CBC initiatives is that by working together, people are able to achieve more than individuals or organizations working on their own. CBC also

involves people and communities which are affected and whose involvement is likely to result in better and more acceptable long-term solutions (Forgie et al., 2001).

There are a large number of conservation initiatives in India in which local communities are playing a central role. These range from continuing traditional practices such as sacred groves, revived protection of areas which serve as natural resource catchments for the communities, and saving natural habitats from destructive commercial/industrial forces (Bandyopadhyay, 1999). These can be self-initiated efforts of the communities or supported/facilitated by government or non-government external agencies. It is believed that a very large amount of biodiversity, both wild and domesticated, is being conserved by such initiatives. For example, on June 24, 1973 the first successful resistance (called the Chipko movement) to forest felling at the Mandal forests in northern India was organized. A group of village women, led by one Gaura Devi hugged trees, challenging the brute power of hired sawyers about to cut down the trees for a sporting goods company. Gaura Devi quickly mobilized the other housewives and went to the forest. Pleading with the labourers not to start the felling operations, the women initially met with abuse and threats. When the women refused to budge, the men were eventually forced to retire (Bandyopadhyay, 1999). Literature review shows that the Chipko movement spread to other areas in the Garhwal region, ranging from Reni to Tehri to Kumaon where forest auctions were being opposed in several places. In October 1977, large demonstrations were organized in Nainital where several leaders of Uttarakhand Sangharsh Vahini were arrested. The Chipko movement witnessed resurgence in Chamoli in Kumaon where, despite its early successes, commercial tree felling continued to threaten the ecological stability of the different habitations (Guha, 1999.). There are

numerous examples of a diverse range of CBC initiatives ranging from ongoing traditional ones to entirely new ones, from community-led ones to state-initiated ones, each providing a number of important lessons for future conservation efforts. A few such initiatives are cited below.

2.7.1 Forest Conservation and Water Harvesting at Bhaonta-Kolyala Villages, Rajasthan, India

Bhaonta-Kolyala are twin villages situated in the upper catchment of Aravari River which flows through the Alwar district in the state of Rajasthan. This region is characterized by dry weather and receives less than 600 mm of rainfall annually. There are around 70 villages in the Aravari catchment. The main livelihood strategy of this semi-arid region is a combination of intensive rain-fed cultivation and animal husbandry. Water conservation has traditionally involved trapping water during the short rainy period by constructing a series of small dams and tanks (johads). To avoid the silting up of these water structures, it is important that the slopes of the hills in the catchment remain forested. In recent years, an overdependence on irrigation by the state has led to the villagers neglecting the maintenance of the johads. In addition, excessive felling of trees has led to an increase in soil erosion, thus silting up the johads. As a result, the villages of this area have faced severe drought conditions during the past few decades (Shresth and Devidas, 1999).

Over last 15 years, some 200 water harvesting structures have been built in the 70 villages in the Aravari catchment area by the villagers and a local NGO, Tarun Bharati Sangh (TBS). These structures have led to the replenishment of groundwater, increasing the water table and enabling the Aravari River (which had almost disappeared) to flow perennially again. The community of Bhaonta-Kolyala had a major role to play in this

initiative by combining water harvesting with forest conservation and other rural reconstruction work (Shresth and Devidas 1999).

This all started back in the 1980s following an awareness march organized by TBS in these twin villages with the slogan “build johads, save forests”. During this campaign an effort was made to highlight links between the forests, soil and water. This resulted in a series of discussions between the villagers and TBS, and as a result a decision was made to collectively protect the forests and construct the johads. In order to carry out the agenda of forest and water conservation, a coordinating body - the gram sabha (village assembly) - was formed. This was an informal body that served the aspirations and common needs of the village community. The gram sabha had the right to make changes in regulations and enforce penalties. However, this body had no recognition by the state and no legal authority. The decision to protect forests went hand in hand with water harvesting work and involved admitting past mistakes with a commitment towards a regulated forest use. In the last decade, around 17 water harvesting structures have been built with TBS providing around 75 percent of the cost, with the villagers responsible for the other 25 percent of the cost in the form of labour, materials and money. After ten years of successful forest protection and on the suggestion of TBS, the forest has been declared a Bhairon Dev Lok Van Abhayaranya (Bhairon Dev People’s Sanctuary) in October 1998, as an example of successful efforts at conservation by the communities (Shresth and Devidas 1999).

The impacts of this CBC initiative have been numerous. The regeneration of several hundred acres of forest area has taken place and there seems to be a revival of some wild animal populations. There has been an increase in the number of herbivores and some

villagers have reported seeing leopards which the elders in the villages have welcomed. They believe the presence of wild animals in the forest will inhibit people from venturing into the forest. Villagers feel the most marked change is the presence of water, as indicated by recharged wells as well as greenery in the village. Since 1990 there has been an increase in agricultural production with two crops easily grown in one year. Livestock has become more productive due to the increased availability of fodder. There has been a decline in the rate of emigration from the village due to increased agricultural and pastoral production (Shresth and Devidas, 1999).

2.7.2 Pelicans, Storks and Humans at Kokkare Bellur, Karnataka, India

Kokkare Bellur is a small village situated about 80 kms from Bangalore in the Mandya district of the Karnataka state in the southern part of India. Shimsha, a perennial river, flows to its south. Kokkare Bellur is a typical dry land village of southern India and has cultivated fields, fallow fields, cactus hedges and old and new trees in the village and fields. A few farmers can afford the luxury of irrigation pumps despite its proximity to the river.

This is a typical village in south India during six months of a year. The residents follow ancient rhythms of the agricultural calendar. During December to June the village gets transformed. Spot-billed pelicans (*Pelecanus philippensis*) and painted storks (*Mycteria leucocephala*) migrate from the lakes in southern Karnataka in the hundreds and make this village their home. They nest in breeding colonies on the tall trees in the very heart of the village. There is no explanation as to why these birds make this village their home,

but according to legend these species have been coming here to breed for hundreds of years (Manu and Jolly, 1999).

The people of Kokkare Bellur have always offered protection to these birds though no godly status is bestowed upon them. The villagers' benevolent tolerance of these noisy, smelly annual visitors is the most basic protection they have accorded to these birds. There is a ceaseless cacophony from the young birds clamouring for food, and an all-pervading fishy stench of droppings right in the village's backyard once the season starts. The villagers are even ready to sacrifice their crops if the birds choose to nest on the tamarind trees in the fields (Manu and Jolly 1999).

Due to a growing human population, there has been an increased demand for trees for cooking, as animal fodder and using the fruits for sale, and the villagers inevitably have become less hospitable to the storks and pelicans. Due to this and other factors there has been a decline in the number of birds nesting in the village. One villager estimated there used to be more than 1000 pairs of pelicans; today the number is about 160. During the early 1980s, a protection order on the nesting trees was put in force under the Karnataka Tree Protection Act by the Forest Department. A tree could be only felled if it was dead or diseased but this did not stop the illegal felling of the trees. Eventually a compromise between the villagers and Forest Department was reached whereby the villagers were offered compensation on trees used for nesting. This proved to be an incentive to the villagers to stop cutting down trees illegally.

Since 1994 a local environmental group, Mysore Amateur Naturalists (MAN), has been actively involved in the conservation of pelicans and their habitat in Kokkare Bellur. At

least one member of this group has been practically living there which has promoted the re-establishment of harmony between the birds and villagers. A grassroots action group,, Hejjarle Balaga (Pelican Clan), consisting largely of young people from the village and led by members of the MAN, runs a conservation pen for “orphaned” chicks (i.e., those which fall from their nests and would otherwise perish). These chicks are returned to the wild eventually where they lead a normal life with their naturally raised siblings (Manu and Jolly, 1999).

Hejjarle Balaga has adopted the approach to link community health care with conservation and protection for birds. As a result, a tree plantation, educational activities and a weekly health clinic for the people of Kokkare Bellur have been introduced. In 1998 this group also successfully intervened to save a pelican colony nesting on a tamarind tree that the farmer wanted to harvest during the nesting season. This initiative may lead to the revival of the villagers’ traditional values of taking pride in the birds and helping to check their dwindling numbers.

2.7.3 Community-based Conservation at Mendha-Lekha, Maharashtra, India

This case study is based in the district of Gadchiroli in the state of Maharashtra in western India. The Gadchiroli district and surrounding district is famous for its biological and cultural diversity. There was a proposal by the government to build two dams in this region in the late 1970s (Bhopalpattanam on the Godavari River and Inchampalli on the Indravati River.) This not only meant the displacement of economically poor tribal groups from their homes, but also the destruction of large stretches of forests on which their culture and livelihood heavily depended. Due to strong tribal opposition, this project eventually got shelved but it started a strong

movement towards tribal self-rule in the region. Mendha-Lekha, inhabited by the Gond tribal people, was one of the villages where a process towards self-rule gained momentum. This comprises of about 70 households, and the people depend on subsistence agriculture, daily wage employment and forest produce for their livelihood (Pathak and Gour-Broome, 1999).

Up to the 1950s this forest was largely under the management of local tribal landlords. The use and management of its resources was left to the local villagers. Forests were under the management of the Forest Department after India gained independence under the Indian Forest Act of 1927. The focus subsequently shifted from meeting local needs to meeting urban and other national needs. Commercial exploitation of timber and other forests products began, and contracts for such extractions were given to contractors outside the region. These forests included the making of charcoal and stone quarrying which became a source of state revenue. Parts of the forest were also leased out to a paper mill. The process of converting the forest into a protected forest reserve was subsequently initiated (a stricter category under the Forest Act which restricts the access of people to the forest resources) (Pathak and Gour-Broome, 1999). As the villagers were increasingly restricted from using the forest resources for their daily needs, a system to pay bribes to the lower staff to have access to the forest was developed.

This was the turning point for the villagers to organize themselves in an attempt to take back control over the forests. Important decisions made included the following.

1. Domestic requirements of the villagers would be met from the surrounding forests without accepting any restrictions, but at the same time this would be

accompanied by a set of rules for sustainable extraction, including strict prohibition of any commercial use of timber.

2. Permission of the village organization would be required to carry out any programs in the village by any outsider, government or private party.

To achieve the above goals, the villagers united into a gram sabha (village assembly). This sabha is the main decision-making body in the village and is represented by at least two people (a male and a female) from each family in the village. The decisions taken are all unanimous and implemented through strong social rules. Permission is needed from the gram sabha to enable outsiders (government officials, researchers, NGOs) to carry out any activity in the village or adjoining forests. In addition, institutions such as the Van Suraksha Samiti (VSS) (Forest Protection Committee), Mahila Mandal (women's organization) and Abhyas Gats (study circles) have been formed to act as a forum for frank and in-depth discussions ranging from immediate village problems and their solutions, to wildlife conservation. No fixed rules are followed for these study circles. Members gather when it is necessary and convenient for them for them to address any casual or serious discussion. From time to time experts in relevant subjects are invited from outside the village. This helps in making informed decisions during the gram sabha or VSS meetings (Pathak and Gour-Broome, 1999).

Also, joint meetings the villagers and representatives of all government functionaries in the area have been organized at the initiative of the gram sabha. These meetings facilitated face-to-face dialogue between the agencies and have resulted in pooling resources together for development activities. These institutional structures have enabled the villagers to achieve greater organization, and establish good relations with sensitive

government officials and NGOs. This arrangement has succeeded in facilitating inter-departmental co-operation among various government agencies operating in that area (Pathak and Gour-Broome, 1999).

Impacts of this type of arrangements are numerous. The villagers can assert their rights to natural resources or any other developmental activity if they take the responsibility for managing these resources in the right manner. And this can be done by overcoming their weaknesses and acquiring impartial knowledge. The villagers are empowered as they are also respected in official circles. Such is the scenario as people from all governmental and non-governmental organizations come to the village if the need arises instead of calling the villagers to their offices. Decisions are implemented through a transparent and democratic process which leaves little space for misunderstanding and fragmentation. Women are given equal status in all decision-making processes. Mendha-Lekha has become a very good example for other adjoining villages which have low economic status and whose forests are in the last stages of destruction (Pathak and Gour-Broome, 1999).

There have been some positive impacts on forests and wildlife as well. The villagers have realized the importance of forests in their lives and the need to protect and conserve them. Soil erosion and excessive runoff has been arrested by following water and soil conservation efforts. Some fixed rules have been made about resource extraction from the forests by establishing penalties for the offender. Forests are protected from commercial activities such as the extraction of bamboo by paper mills and villagers have managed to control encroachments in the surrounding forests. The villagers have convinced the Forest Department to include the standing natural forests into the Join Forest

Management arrangement. It has been decided the forests will not be set on fire and if the case arises, the villagers will help extinguish it. Livelihood security has been ensured to all the villagers, be it through access to the forest or other employment opportunities. Overall sensitivity to conserve forests has increased amongst the village folks and they have realized their rights to natural resources.

2.7.4 Case Study of Chakrashila Wildlife Sanctuary, Assam, India

In the Dubri district of Assam in northeast India, Chakrashila Wildlife Sanctuary (CWS) is spread over hilly terrain covered with dense semi-evergreen and moist deciduous forests, with patches of grasslands, scattered bushes and several water sources. The climate is temperate with dry winters and hot summers followed by heavy rains. Diverse mammals are found in this ecosystem along with a wide variety of birds. Chakrashila Village is inhabited by ethnic tribes belonging mainly to the Rabha and Bodo communities, as well as a limited number of Garo and Rajbarshi families. Paddy is the main crop. Potatoes and green vegetables are grown for home consumption and a few livestock are kept (Kothari et al., 2000).

The major threats to wildlife include smuggling, poaching, hunting, indiscriminate exaction of firewood by outsiders as well as villagers, and the poverty of the villagers. The thick forest along the periphery of Chakrashila got denuded, resulting in the villagers moving further into the forest and causing a drastic shrinkage of the forest area. The community involvement began with the efforts of an NGO called Nature Beckon (NB) which has been involved with the Chakrashila Hills Reserve since the 1980s. Members of this group realized the conservation of Chakrashila would not be possible unless villagers stopped allowing outsiders from exploiting their forest resources. A

temporary settlement was set up at Jornagra Village on the periphery of the Chakrashila area. The youth of the village took an interest in the activities of the NB which included bird watching, trekking through forests, and identifying plants and animals. They were enrolled as members, and given a badge and identity card, which gave them a sense of involvement. Eventually the local tribes started trusting the NB, and subsequently the NGO started explaining the interdependence of plants and animals, and motivating the villagers to save the Chakrashila region.

Though some were receptive to this idea, some villagers expressed their inability to stop the powerful merchants and poachers. The NB convinced them that poachers and smugglers were indulging in illegal activities that are punishable under the law and they would have no moral rights if the people united to fight them. While exercising restraint, the NB prepared the local youth to take direct action against poachers and smugglers with the full support of the villagers. Every house in the village was visited by the NB and women were also involved in the decision-making process about environmental management. Eventually the poachers and smugglers were confronted by the villagers that soon ended the illegal activities.

Apart from environment management, the importance of improving the well-being of the poor villagers was also realized by the NB for the sustainable protection and development of Chakrashila. The cultivation of traditional foods like wild flowers and roots was encouraged and seeds were given to the villagers to start their own small kitchen gardens. The sale from these along with the sale of poultry products helped them increase their income.

The denuded forest regenerated as a result of these efforts along the periphery of Chakrashila, which was further accelerated by a round-the-clock vigil by the villagers. The success prompted residents of other adjoining villages to adopt similar initiatives. An office and training centre for youth and women of Chakrashila known as "Tapovan" was set up by the NB. This became an active centre of interaction and increased the cohesiveness amongst villagers. Subsequently the Government of Assam declared Chakrashila forests a wildlife sanctuary under the Indian Wild Life (Protection) Act of 1972.

2.8 Potential of Community-based Conservation in India

CBC essentially focuses on a locus of action which may be defined as a place but not the opportunities it offers or what is at stake. The efforts of communities may lead to a new perspective of viewing the earth's landscape which has often been described as ecologically sterile, thus causing people to give up any hope of conserving it. If the efforts of the communities succeed, biological losses can be minimized and the conservation efforts can help improve the environment at the grassroots level (Western et al., 1994).

According to ancient scriptures, Indians recognize the divine (God) is present in all the five elements, namely air, water, fire, earth and space. It is perceived that the divine exists in trees, medicines, rivers, lakes, mountains and living beings. Due to this, people have maintained a harmonious relationship with Mother Nature over the passage of time, but gradually this value has eroded (Banwari, 1992). Lessons can be drawn from history as there are numerous examples of the prevalence of CBC over Indian history even though other forces are eroding CBC practices. However, the practice of CBC has not

disappeared in the face of all negative forces. Some still persist on a widespread scale; hundreds of thousands of sacred peepal (*Ficus bengalensis*), banyan (*Ficus religiosa*) and other fig trees still dot Indian countryside and other practices are being revived (Kothari et. al., 1998).

The benefits of conserving areas and species for the local communities can be numerous. The most critical relationship between the local rural communities and their natural surroundings is subsistence, as the ability to securely meet their subsistence requirements can create a lasting stake for conservation (Kothari et al., 1998). Also, conservation and habitat regeneration efforts can generate substantial employment. For example, in Khunjerab National Park in Pakistan, 80 percent of new employments opportunities are reserved for local people (Slavin, 1993). In India, at the Keolada and Corbett national parks, local youth are trained and employed as wildlife guides.

Apart from these benefits, CBC efforts can also lead to social, cultural and political benefits. Many ethnic cultures can be protected from developmental influences, creating a revival of self-dignity and confidence which was lost because of external prevalent attitudes. CBC can help communities to revive and achieve greater self-reliance in decision making with regard to the natural resources which could lead to a more democratic society overall. Lele et al. (1998) point out that while economic incentives play an important role, the legitimacy and political empowerment that may result from a community's involvement in CBC can be an added incentive for mobilization.

2.9 Scaling-up of CBC Initiatives

CBC initiatives operate on different scales. At a broad level, scaling-up refers to efforts “to bring quality benefits to more people over a wider geographical area more quickly,

more equitably, and more lastingly” (Hooper et al., 2002) . Scaling-up also connotes a movement of experience, knowledge, impact and effects of the lessons learnt to higher levels of an organization or society. The term is also used to cover all forms of expansion, growth and replication. At a finer level of resolution, however, four distinct types of scaling-up have been identified – quantitative, functional, organizational and political (Hooper et al., 2002).

- Functional scaling-up refers to organizations increasing their scope of activity. Functional scaling-up allows grassroots and participatory programs to add complementary activities to their operational range through diversification.
- Quantitative scaling-up occurs when a program or organization expands its size by replicating itself or increasing its membership base, its constituency or its geographic influence.
- Organisational scaling-up takes place when an initiative is strengthened to improve the effectiveness and efficiency of its activities. Communities can achieve this objective financially through new sources of support, through the promotion of economic independence (for example, creating activities that generate more income) or through reliance on public funds.
- Political scaling-up refers to efforts to engage in the political process and forge relations with the state. Through political scaling-up, community-based organizations can work towards greater empowerment and attempt to change the fundamental roots of underdevelopment.

Scaling-up also represent a horizontal spread within the same strata, particularly within more communities. This holds true not only at the local level but from international community-based organizations. Examples from the Palqui community forestry

experience in Bolivia show that community-based organizations can gain a lot from one another. In addition, horizontal learning and sharing between communities increases the probability of success for a given project as it allows the community, which is starting out, to draw from the knowledge and experiences, both successes and failures, of more experienced communities. In some cases, workshops and training initiatives lead to national level gatherings, as with the Pichasca case in Chile. Growing-in scale hinges critically on the willingness and ability of community-based organizations to learn from their mistakes and share their successes (UNDP, 2006).

Literature indicates that both scaling-up and scaling-out implies adaptation, modification, and improvement (not just replication) of particular technologies and techniques, but more importantly principles and processes.

2.10 Role of Leadership in CBC Initiatives

Leadership has been identified as a determining factor in the success of any community initiatives. According to Timmer (2004), the presence of strong leaders can lead to an undermining of democratic processes and relationships between the community and external actors during the establishment of a community project and organization. On the other hand, evidence also shows that inspired local leadership, either from individuals or small teams of people, is important, particularly in initiating community projects. It is also helpful in establishing an organizational structure and building networks to external actors. As Timmer observes, "In this process, the main leader need not be the founder; sometimes the second or third leader becomes the key. What is needed is a strong personality with enough commitment and drive to give the organization a central focus and, equally important, external legitimacy and alliances" (2004).

The general assumption is that leadership plays an important role in identifying problems and challenges, determining possible solutions, and producing a compelling vision that inspires others. Leaders can play a role in managing the process of achieving a set of agreed-upon goals once this vision has been achieved. They can be instrumental in gathering resources and establishing organizational structures to address the problem and in experimenting, learning and adapting to changing circumstances.

Leaders for local initiatives can emerge from within or outside the community, including from a non-governmental organization, government agency, research institution or private sector company. The initiatives launched externally often seek leaders within the community to form partnerships in developing the initiative. In many conservation efforts, local people are engaged to assist in the management of protected areas and vulnerable ecosystems. As identified from the analysis of finalists of the Equator Initiative, certain characteristics of a successful leader have been associated with potential successes of CBC initiatives. These five characteristics of a leader or leadership are innovation, communication, learning, bridge-building and systems thinking. The presence of these characteristics will vary from case to case in CBC initiatives.

2.11 Self-organization in CBC Initiatives

An important question in any CBC initiative is what makes the people or organization come forward and take up responsibility to act to make a difference? This may be termed as being self-mobilized or self-organized. Self-organized conservation initiatives come from groups which are usually highly motivated and organized with strong local leadership (Timmer, 2004). Self-organization is a characteristic of both human and natural systems. As observed by Seixas, projects may originate as a result of the locals'

demands or from outsiders' agendas, but often they evolve by partnership and feedback learning. Trigger events also play an important role in the self-organization of the CBC project. By *trigger events*, we understand the motives or events which lead people to get mobilized around an initiative. Seixas et al. (submitted) in Seixas observed that 63 percent of the 24 final projects of the 2004 Equator Prize seemed to be initiated by community-based organizations or local NGOs, while 21 percent were initiated (or largely influenced) by outside supportive organizations. In many cases, a diverse group of ordinary people (e.g., school teachers, farmers, religious leaders, youth groups or community leaders) came together to search for solutions for social or environmental problems or threats to their livelihoods. In some cases incentives in the form of economic returns motivated them to participate in such initiatives.

The understanding of self-organization can provide useful information on how CBC initiatives evolved, survived or failed. As noted by Seixas, factors such as a vision to promote a possible change, leadership and community involvement are necessary for conservation projects. At the same time presence of knowledge and skills of a supportive organization, funding and other resources, capacity building and social-economic incentives may serve as catalytic elements in such initiatives.

2.12 Criteria for Evaluating Success of CBC

Determining the success criteria for evaluating CBC is a difficult process which is largely ignored (Western et al., 1994). Defining goals is a necessary starting point in evaluating CBC. Goals may involve natural resources, biodiversity conservation or wild lands, and ways to achieve those goals need clarification. Is conservation to be achieved indirectly, through development, or more directly through changes in attitude and behavior and the

benefits that accrue from strong conservation? Regardless of the goals and methods, the end results must be measured in terms of real conservation improvements, participation, tenure rights and improvements in general living conditions. CBC can be judged as a relative success if it succeeds in slowing down degradation more effectively than alternative conservation methods under similar circumstances (Western et al., 1994). Other questions include: does conservation improve as a result of community action? Is a community better off for participating in conservation? Whether the action originates within or outside the community has to be taken into consideration. The factors which inspired the community to work for their own good play a very important role in the whole scenario. Was it lack of good governance or a lack of implementation of developmental works that forced the community to work for its own good?

The success of CBC can also be gauged in terms of benefits to the local communities. These can be subsistence benefits, economic benefits (employment, revenues, returns from commercial activities), and social, cultural and political benefits (Kothari et al., 1998).

Success in CBC ultimately must be measured by how deeply the effort is embedded in each community's aspirations and how each member of the community exerts an effort to sustain it.

2.13 Conclusions

India has made remarkable progress in the areas of food production, industrial development, energy generation, socio-economic conditions and other fields since its independence in 1947. However, that progress is accompanied by impacts on the environment due to an increase in the pressures on the natural world. Conservation on

different fronts needs to be promoted and steps taken to ensure that efforts are being made in the right direction. In order to mitigate negative impacts on the environment and better protect, preserve and improve its quality and strengthen the endeavors of government and agencies, it is important to ensure participation of all the stakeholders in the decision-making process (Tiwana et al., 2005).

To ensure that environment protection reaches the grassroots level, local communities need to be involved in conservation efforts through awareness, participatory planning, and equitable sharing of responsibilities and benefits. Thus arises the need to assess grassroot projects like the Seechewal environmental initiative to better understand the environmental, economic and social dimensions, and examine the positive impacts of it throughout the country. The literature review shows the Seechewal environmental initiative has not been studied in academic terms, and the outcomes of this study can add to the vast literature that exists on CBC. The various sources used in the literature review include books, journals and internet sources.

CHAPTER 3: METHODS

3.1 Introduction

Qualitative research involves an in-depth understanding of the qualities of entities and processes and meanings that are not experimentally examined or measured in terms of quantity, amount, intensity or frequency. Stress is mainly laid on the socially constructed nature of reality, the relationship between the researcher and what is studied. Emphasis is on the value-laden nature of enquiry (Denzin and Lincoln, 2000). For this thesis qualitative research was chosen as there was no aspect of research involved which could be measured in quantitative terms such as frequency, intensity or any other physical measure. The study is subjective with many different aspects associated with all the characteristics of the observed phenomenon. Answers were sought to questions that stress how social experience is created and given meaning. A common way to do qualitative enquiry is in the form of a case study, of which there are three types: namely intrinsic, instrumental or collective.

An intrinsic case study's purpose is to gain a better understanding of a particular case. It is not primarily undertaken because it represents other cases or illustrates any particular problem: instead it is studied because it is of interest in itself (Denzin and Lincoln, 2000). Seechewal is an intrinsic type of case study.

3.2 Choice of Case Study – Criterion.

This research was carried out using a case study approach and focuses on the Seechewal initiative in Punjab. Seechewal has been chosen due to many factors, the foremost being it has functioned without any support from the state government. Several tasks have been undertaken: clearing of the river (associated with first Sikh guru) of weeds such as water

hyacinth, laying of underground sewerage in the village, laying of roads, construction of parks in places where ponds full of stagnant and foul-smelling water existed, and many others activities.

The main criterions for studying Seechewal as case study were;

1. Its contribution in bringing about changes in the environmental conditions and to lives of the people of the area.
2. The willingness and cooperation of the community to work with the researcher.
3. The initiative being participatory in nature, with people from all walks of life becoming involved.
4. The initiative being self-sustainable in nature with no financial support from any organization.
5. The Seechewal initiative being frequently cited at a national level as an example of conservation initiative by the former President of India Dr. A.P.J. Abdul Kalam.

3.3 Methods

The objectives of my research were based on the following research methods.

a. Literature search

- i. Secondary sources such as books and other documents related to the historical and chronological development of the Seechewal movement.
- ii. Books and journals related to community-based conservation initiatives in India and the rest of the world.

- iii. Government reports and documents related to policies and laws on environment protection and the state of the environment in India with a special focus on Punjab.
- iv. Reports issued periodically by concerned departments (Department of Rural Development, Department of Science, Technology and Environment, Government of Punjab).

b. Key expert interviews

To gain in-depth knowledge of the factors and circumstances which led to this movement and its impact on social, economic and environmental parameters, experts who have been pioneers at every stage of the movement were interviewed. These individuals had particular or “expert” knowledge about the county, its people, the environment and other pertinent issues.

These experts included people from the local administration who monitored various activities under the initiative, academic intellectuals who were involved either directly or indirectly with this initiative, people who supported the initiative and also those who did not. The selection of experts was based on information gained from available literature, publications, and audio and video materials available prior to leaving for the fieldwork. In addition it was ensured that the key experts represented each demographic characteristic and key group in the research area.

c. Field observations

Field observations play a very important part in getting an accurate and real picture of the situation at ground level. In observational research, an attempt

is made to see events through the eyes of the participants in the study (Denzin and Lincoln, 2000). Attention is paid to small details and nothing is taken for granted. In this case, observation-based research was done by participant observation which is grounded in the development of considerable rapport between the observer and the host community (Denzin and Lincoln, 2000).

The observing was done by participating in ongoing activities and meetings with people who were directly or indirectly involved with the ongoing activities of the Seechewal initiative. Field observations also lead to the exchange of information on various issues. During the fieldwork, a few activities were underway in the village Seechewal and at Sultanpur Lodhi near Seechewal. In Seechewal, a college building was under construction with the community's participation. The researcher also participated in this activity along with people from Seechewal and adjoining villages.

In Sultanpur Lodhi, as part of the maintenance of the Kali Bein, students from local colleges were volunteering to clean the Bein and the researcher also participated in this activity. Towards the end of the fieldwork, the construction of an underground sewerage system was initiated for villages situated on the banks of the Kali Bein. This project began in the village Busowal. The researcher visited this village Busowal and observed those involved in the construction of the pipeline. Observational data from all these activities was recorded by date, time and event in the researcher's field books.

d. Focus groups

A focus group is a form of qualitative research in which a group of people are asked questions about their attitudes toward a product, service or concept. This is done in an interactive group setting where participants are free to talk with other group members. These normally constitute collective conversations or group interviews. These groups can be small or large, directed or non-directed (Denzin and Lincoln, 2000). Focus groups interviews capitalize on:

- communication between research participants in order to generate data and
- group interactions that are used to collect data from the participants.

This method is particularly useful for exploring people's knowledge and experiences and can be used to examine not only what people think but how they think and why they think that way (Kitzinger, 1994).

The focus group discussions were used to elicit views of resident villagers and people who were part of the Seechewal initiative during its many stages. Initially a set of questions were prepared to serve more as a guide and stimulate discussions. These questions were intended to stimulate discussions, but during the focus groups it was realized that scope of the discussions could be much wider.

A total of six focus groups discussions were conducted to gain knowledge and understand the different perspectives of people regarding the Seechewal environmental initiative. The key discussion questions during the focus groups were:

- What are your views on the Seechewal initiative?

- Do you think that this initiative has been beneficial for the society?
- How does decision making process work before any activity is undertaken under this initiative?
- Who makes the decisions about the nature of activities to be undertaken during this initiative?
- What are the groups' views about social, economic and environmental benefits that have occurred due to this initiative?
- What are the groups' observations on identification of the existing issues or challenges which are facing the Seechewal community?

Table 1 Details of focus groups

The details of these six focus groups are below.

Sr. no.	Date	Venue	Number of participants
1.	03.08.2006	Residence of Darshan Kaur, village Seechewal	06 (all females)
2.	04.08.2006	Residence of Darshan Singh	10 (mixed residents)
3.	06.08.2006	The common meeting place of Valmiki mohalla (Valmiki are considered to be people of lowest caste in caste hierarchy in India. Mohalla is a group of houses.)	10 (all participants are from Valmiki caste)
4.	08.08.2006	College in village Seechewal	08 (all teachers of local college and Sant Sukhjit who is second in command after Sant Seechewal)
5.	25.08.2006	Residence of Sarpanch (elected head of village council) Raghbir Singh in village Talwandi Madho	10 (all males)
6.	08.09.2006	At the village Gurudwara (Sikh temple) in Sherpur Dona	15 (mixed residents of village Sherpur Dona)

Data from the focus groups was recorded in the form of written notes and also using voice recorder.

3.4 Interviews Using Semi-structured Questionnaire

The interviews were done using semi-structured interview questionnaires. A set of questions was prepared to serve as a guide to stimulate discussions. The length of each interview ranged from 20-30 minutes depending on the direction of the discussions of interviews as well as the knowledge of the individuals. The data was recorded on the pre set questionnaire templates with additional notes taken. The willingness and availability of the participants were taken into account. The people who were to be interviewed were also given an option with respect to whether they were interested in participating in interviews. They were given the option to leave the interview at any stage.

The sample of respondents was selected using random and snowball sampling techniques in which respondents identify other respondents in order to get participants from all residential areas in the village Seechewal. This kind of sampling technique was chosen due to the absence of any structured census data for Seechewal and the adjoining villages. The study areas included the villages of Seechewal, Sohal Khalsa, Talwandi Madho, Sherpur Dona, Sultanpur Lodhi, Kanjli, Kapurthala and Galowal (their locations shown in Map 3). Interviews were first carried out in Seechewal. In the 101 interviews conducted, this sample size from Seechewal was the largest, accounting for almost 50 percent of the interviews. There were two reasons for this distribution. Since this initiative started from the village Seechewal, the majority of people associated in this movement are from this Seechewal. The second reason was that in Seechewal, all

aspects of development had occurred like the paving of inner streets, moving the pond from the village interior to the outskirts, constructing a sewerage system and treatment plant in the village and providing free education in the form of a school and a college.

According to a rough estimate from the village council (panchayat), there are around 100 households in Seechewal and to get a representative sample, 50 households were covered. After carrying out interviews in Seechewal, Talwandi Madho, an adjoining village was the next place where interviews were conducted. Afterwards, Sultanpur Lodhi, Kanjli, Kapurthala and Sherpur Dona were covered in this order. (A copy of the interview schedule is annexed as Appendix A).

Table 2 Interviewees by location.

Sr. no.	Village	Number of interviewees
1.	Seechewal Students of other villages studying at Seechewal college	42 08
2.	Talwandi Madho	12
3.	Sultanpur Lodhi	11
4.	Kanjli	09
5.	College at Kapurthala	09
6.	Sherpur Dona	10
	Total	101

3.5 Analysis of Data

Data analysis has been done by the following steps.

1. Details of the case – The specific facts about the Seechewal initiative were arranged in chronological order based on the data collected during the fieldwork. The facts and figures collected during the initial stages of the fieldwork started in the village Seechewal

were initially delved into. Thereafter the factors which led to the cleaning of the Bein were researched and analyzed. Major events spanning more than six years since the inception of the movement and the cleaning of Kali Bein were studied and organized in a chronological order. In other words, the researcher had to assemble a history of events and activities since no record existed. This was done by doing a literature review of the background material and researching the facts and figures which were available about the Seechewal initiative.

2. Categorization of data – In order to cluster data into meaningful groups, major categories were identified from the interviews, focus group discussions and also from primary and secondary sources. From the literature review, available documents and the interview schedules some categories were developed for analysis of data. These themes were listed on long tables as were the data from focus groups and interviews. After transferring and comparing this data, some new categories emerged. Thus the researcher went through the data once again on long tables to identify the most common themes in the responses and they were related to the objectives of the study.

3. Quantitative analysis – The data from the interviews schedules was analyzed in terms of percentages of various responses. This was done to generate the percentages of sample which responded in a particular way.

4. Synthesis and generalization – After the compilation of data was complete, an overall assessment of the case study was done. Generalized conclusions were drawn for generalization about some observed trends which were part of the scope of this study.

3.6 Ethical Considerations

The University of Manitoba complies with the Tri-Council policy statement, “ethical conduct for research involving humans.” As per this policy, all research projects involving human subjects conducted at the University of Manitoba require prior ethics review and approval by a Research Ethics Board (REB) (U of M Policy &Proc, Section 1400, Policy 1406). To comply with this a suitable research ethics protocol and procedures in accordance with the requirements of the REB were developed. The questions of the proposed survey were submitted to the REB together with detailed ethical considerations. A copy of the human ethics approval given by the **Joint-Faculty Research Ethics Board**, University of Manitoba has been attached as Appendix B.

CHAPTER 4: TRANSITION TOWARDS COMMUNITY-BASED CONSERVATION

4.1 Seechewal – An Introduction.

The Seechewal initiative is an example of a community-based conservation initiative where local communities are involved in conserving the natural resources and their habitat. The communities are also involved in the decision-making process. The Seechewal initiative is a religious and environmental initiative which originally started in the Jalandhar district in the state of Punjab later spreading to the adjoining districts of Hoshiarpur and Kapurthala. This initiative has many aspects associated with it and includes the following activities.

1. Cleaning of the river Kali Bein
2. Construction of roads
3. Provision of education
4. Construction of sewerage system
5. Social activities

The above activities had been undertaken under the leadership of Sant Seechewal who, before to the start of the Seechewal initiative, was in charge of Nirmal Kuteya (blissful hut), a seat of Nirmala saints from old times. This Nirmal kuteya is situated at a small distance from the village Seechewal in a secluded place which, as per the beliefs, is ideally suited for individuals who liked the ascetic way of life. Before Sant Seechewal many saints came to settle at this place in early times. Sant Avtar Singh preceded Sant Seechewal and arrived from Haridwar to take charge of Nirmal Kuteya. At the time, there was a large expanse of wasteland covered with thorny bushes all around the hut. Sant Avtar Singh changed the whole area by uprooting bushes and planting mango trees,

almonds, pomegranates and oranges. He also started preaching the Sikh Holy Scriptures to the local population, and Sant Seechewal was one of his first disciples. Apart from imparting religious education, Sant Avtar Singh also taught moral values to the people. He was assassinated on May 27th 1988 by some unknown persons. Thereafter Sant Balbir Singh Seechewal took over the Nirmal Kuteya (Nirmal Kuteya, 2004).

Nirmal Kuteya underwent a significant change under Sant Seechewal's leadership and it became popular with the people of Punjab. Sant Seechewal believes in bringing religion to the service of humanity and considers this to be the true spirit of Sikhism. The philosophy of Nirmal Kuteya is to think of everyone's welfare, to rise above, the selfish motives, to share the sorrows and suffering of people, and to help the needy.

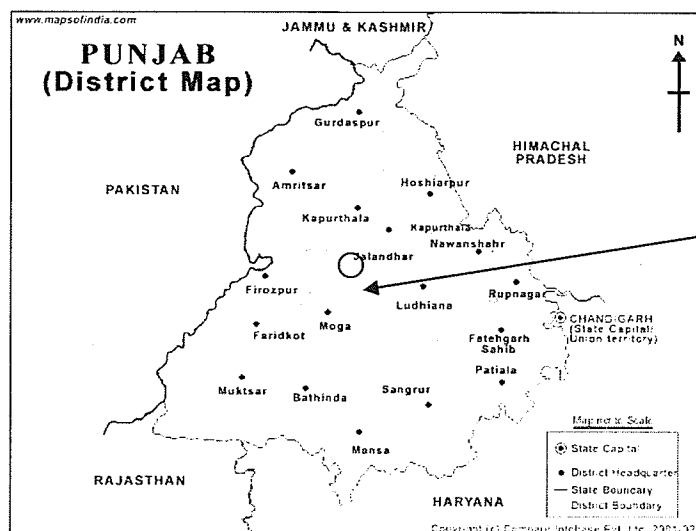
The story of the Seechewal initiative has two timelines. One dates back to 1991 during a religious procession when the participants of a religious procession faced hardships while passing through the region adjoining Seechewal. The paths and roads were covered with sand and the area was mostly dominated with huge sand dunes. This hardship led to the task of leveling the sand mounds for constructing new roads and clearing the existing ones. This not only resulted in easy passage for the villagers but also to the beginning of other development projects as the roads now provided an easy commute between villages and far-flung areas (Nirmalkuteya, 2004).

The second timeline dates back to 2000 when a meeting of intellectuals was held in Jalandhar, a major city in Punjab. Pollution of the rivulet Kali Bein was the main agenda item as most of the speakers expressed concern over the gravity of the situation.

Everybody agreed that pollution of the Bein was very bad and steps needed to be taken to clean it immediately. As one of the invitees, Sant Balbir Singh Seechewal expressed his concern too and said that instead of empty talk, something practical should be done. He announced that voluntary work would start at the Bein and called upon the intellectuals present to join him in this task (Nirmalkuteya, 2004).

The very next day on July 29, 2000, after offering initial prayers at a Sikh temple, the actual work of cleaning the Bein was started at Sultanpur Lodhi. At the same time, to facilitate easy movement of the voluntary workers, the construction of the road from the village Seechewal to Sultanpur Lodhi began. A meeting of prominent people from Sultanpur Lodhi was held to work out the modalities, as the cleaning and beautification of the Bein have been considered the highlight of the developmental work being done under the Seechewal initiative.

This has been due to many reasons. Cleaning of the Kali Bein was seen as monumental work. Even the consecutive governments of the state had been hesitant in taking on a project of this huge magnitude.



Map 4. Seechewal on the map of Punjab

The work included, among other factors clearing the bed of the Bein, preparing roads, planting trees and plants on both sides of the river, constructing stone dykes and demarcating the area of the bein . A stretch of 160 km of the Kali Bein has been cleaned by voluntary service.

Some specific challenges encountered were:

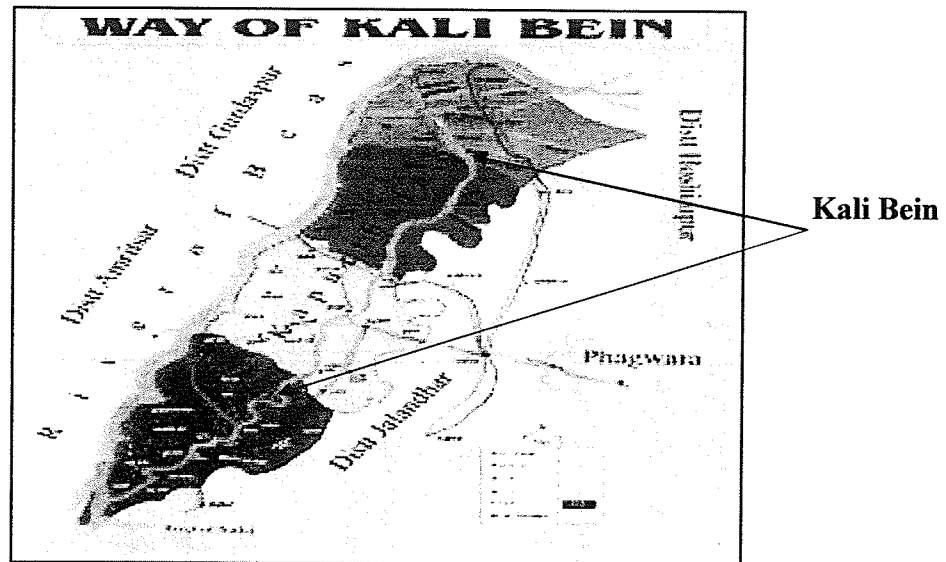
1. removal of water hyacinth which was blocking the Bein
2. removal of deposits of silts from the riverbed
3. demarcation of the area of the Bein as many spots had been encroached upon, and
4. restoration of the flow of freshwater in the Bein by eliminating blockages of weeds.

4.2 Kali Bein - The River.

The Kali Bein is a river flowing in Punjab in which Guru Nanak, founder of Sikhism, is believed to have taken a holy dip and attained enlightenment five centuries ago. The 160 km long river, which springs from the Dhanoa village in the Hoshiarpur district of Punjab, merges at the confluence of the rivers Beas and Satluj at Hari-ke-Pattan. The

Punjabi word “Bein” or “Vein” may be derived from the Sanskrit word “Veni” meaning “a water body” or a “particular stream”. Some rivers and streams in India have also been named “Veni” or “Bein”. In view of the geographical location and behaviour of Beins in Punjab, it seems that Bein is a stream which moves in an intricately zigzag way. This feature distinguishes it from other water streams as Beins are normally found in plains, not in hilly regions (Souvenir – Ek Onkar Trust, 2006).

The physical features of the Kali Bein include its catchment area which extends over 945 square km. The length of the Bein is 160 km and its average slope is 13.5 feet per mile. Geographically Kali Bein is located at latitude 31° 10' 60 N and longitude 75° 2' 60 E. The Kali Bein rises from the Terkiana marshland and is named Kali because its water is brackish. Its source is the underground water that surfaces at numerous places. In the ancient times the Bein was directly linked to the river Beas, but since the river Beas has changed its course and moved westward by a few hundred meters, the Bein has been taking water from waterlogged areas and marshes of Terkiana near the Beas. Here small quantities of water ooze out at different places such as Dhanoa, Himmatpura and Terkiana and moves downwards in narrow waterways and joins together to form a small brook in the marshland of Terkiana. Beginning its journey from Terkiana marshland in the Mukerian sub-division of Hoshiarpur, the Kali Bein moves in a southwestern direction recoiling like a snake. The river has also been called the lifeline of the Doaba region which is in the central region of Punjab.



Map 5. Kali Bein flowing through Punjab

This Bein drains out excess water of the waterlogged Bet area of the Mukerian and Dasuya tehsils and brings it to a large area in the Kapurthala district where it is very much needed for the replenishing of the water table. In times of flood, the Kali Bein comes to the rescue of the lives and property of the people, especially in the Kapurthala district, by draining out the floodwater. Kali Bein is thus very crucial economically for the life of the Doaba area, where more than 80 percent of the people depend on agriculture (Souvenir – Ek Onkar Trust, 2006).

4.2.1 The Religious Aspect

The Kali Bein has a historical significance too. At Sultanpur Lodhi more than 500 years ago, Guru Nanak Dev, the first Sikh guru came to stay at this place and is said to have attained enlightenment. People from the Sikh community consider this spot to be a place of pilgrimage. Apart from its religious-philosophical significance, the Kali Bein is also associated with the religious and cultural life of the Doaba region. Many historical Gurudwaras (Sikh temples) are situated on the riverbanks. From old times people used to

take baths in its water. This was considered to be a good omen and holy on auspicious days. The Kali Bein is related to common people's daily life from birth to death. Burial grounds of many villages are situated on its banks.

With the onset of development, the passage of generations and changing values and tradition, the Bein lost its original glory and the existence of the river faced numerous problems.

4.3 The Problems

Like other rivers and streams of India and Punjab, the Kali Bein has lost its old glory and purity. Falling prey to urbanization, commercialization and industrialization, the river had turned into a virtual sewer with several drains pouring into it from adjoining townships as well as effluents from the Railway Coach Factory in Kapurthala in Punjab.

4.3.1 Pollution

The biggest problem was the disposal of sewage water due to a lack of facilities for proper water disposal in towns and villages situated on the banks of the Bein. The sewerage systems of these towns were designed to discharge dirty water into the river. Some factories were also disposing highly toxic effluents (Nirmal Kuteya, 2004).

This constant pollution of the Bein had affected life in the region in more than one way. First the polluted effluents which included highly toxic chemicals were seeping into the underground water and polluting it, causing permanent and irreparable damage. It was also affecting the health of the people who lived on the banks of the Bein and they were forced to consume this water from their hand pumps, creating a great public health concern. Second, the polluted water flowing into the rivers bring clayey mud which is

spread over the bed of the flowing Bein, making thick layers of silt and clogging the pores of the earth and preventing the replenishing of the underground water table. Third since this Bein is associated with the first Sikh guru, people from far and wide come to visit this holy place and also to take a dip in the water. Polluting the waters of this Bein is considered to disturb religious feelings. Fourth, this polluted water was a source of drinking water for many communities downstream, and the people drank it directly and used it for other purposes too. As well, the Bein was completely choked by thick layers of water hyacinth which had blocked the passage of the water. Moreover the river had become a garbage disposal facility for people who did not have any other place to dispose of their trash.



Plate 3. Discharge of untreated sewage water making its way into Kali Bein.



Plate 4. Kali Bein clogged with water hyacinth.

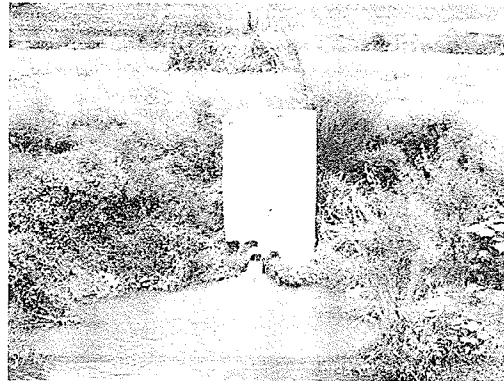


Plate 5. Kali Bein, a drain of polluted water

Another problem was the deposition of silt on the bed of the Bein in the absence of a regular flow of water. This silt in the riverbed was so thick that heavy-duty tractors were used to remove it. People residing near the banks of the Bein or with some cultivable land near the Bein had encroached upon it and there were no records of ownership of land. There was lots of ignorance and narrowmindedness amongst the owners who had land adjoining the Bein. They feared they would end up losing their land if the Bein was ever cleaned. Earlier water from the river Beas was a natural water replenisher to this Bein,

but since the river had shifted away there was less flow of freshwater (Nirmal Kuteya, 2004).

4.3.2 Encroachments

Equally grave was the problem of encroachment on the Bein area which was as rampant as the pollution issue. The first type of encroachment came from the house builders and other institutions. Due to a steep growth in population in the Doaba region, there has been a boom in real estate and construction had proceeded at an alarming rate. This has resulted in the shortage of available land. The riverbanks of the Bein were vacant and people had occupied it without any legal authorization. This has led to a mushrooming of colonies and houses on the banks of the Bein. Any opposition to such encroachments is rare since most of the encroachers are influential people (Nirmal Kuteya, 2004).

A second type of encroachment was by farmers who own lands adjoining the Bein. The needs and greed for more crop yield and the absence of any legal impositions led the farmers to hunt for more land. This meant more illegal occupation of vacant land on the banks of the Bein and resulted in the shrinking of the Bein area. One of the reasons this process continued without any checks was the absence of revenue records. Wherever some revenue records were available, the revenue authorities registered illegal sale deeds of encroached lands in favour of the encroachers.



Plate 6. Cleaning of Kali Bein in backdrop of encroachment.

Due to such encroachments, the passage of the Bein had narrowed down, leaving no place for the river to flow. Both problems of encroachment and pollution proved fatal for the Kali Bein.

4.3.3 Scarcity of Water

While pollution and encroachment are the common problems to almost all the rivers and streams in India, the problem of water scarcity was very peculiar to the Kali Bein. There were many reasons associated with it.

First as mentioned above, the river Beas has shifted from its place of origin, with the passage of time. After this the Bein got water from underground sources but with the establishment of the Pong dam on the river, the water level went down and water could not be supplied to the Bein. Second, the water level in the Terkiana marshland, which also used to feed the Bein, went down. Third, due to a wrong policy, a barrage was constructed across the Beas which stopped the water flow into the Bein. Moreover, with the passage of time silt got deposited into the Bein from its catchment areas and it choked

the pores of the earth. The Bein could not provide an outlet to huge stores of underground water which forced its way out wherever it could in the fields, thus leading to problem of water logging (Nirmal Kuteya, 2004).

Lack of sufficient water in the Bein worsened its already-miserable condition. Over time the flow in Bein came to a virtual standstill. The polluted waters mixed with stagnant waters and started giving off foul smells which polluted the surrounding area. This led to favorable conditions for the growth of water hyacinth.

4.4 Cleaning of the Kali Bein

The voluntary work (kar sewa) for cleaning the Kali Bein started in July 2000 at Sultanpur Lodhi near Kapurthala in Punjab. From July 2000 to April 2003, the kar sewa mainly focused on the cleaning and renovation of the holy rivulet at Sultanpur Lodhi. At the time when the task of cleaning of the Bein was initiated, the condition of the Bein was very pitiable. The untreated sewage water and municipal waste were being dumped into the Bein. Even the dead carcasses of cattle were being thrown into the Bein (Souvenir, 2006).

To raise awareness amongst the people of the villages and towns on the banks of the Bein about the need to clean the Bein, a campaign was organized in March 2003 under the leadership of Sant Seechewal. An appeal was made by Sant Seechewal to join this voluntary service and thousands of men, women and children from villages far and wide in the area came forward. He also made an appeal to these villages to stop the flow of wastewater into the Bein, and the villages who complied were honored by the community during religious functions. Religious processions were also organized on the banks of the

Bein on the occasion of the birth anniversary of Guru Nanak Dev. During these processions, an appeal was made to the masses to keep the waters of the Bein clean. Reference was also made to the Sikh religious scriptures which have given sacred status to the preservation of natural resources (Souvenir, 2006). The holy book of the Sikhs “Guru Granth Sahib” states:

1. “The corn is sacred, the water is sacred; the fire and salt are sacred as well; when
the fifth thing is added
Then the food becomes pure and sanctified.”

(Page 473)

2. “Air is the Guru, water is the father, and the earth is the Great mother of all.”

(Page 8)

3. “First, there is life in the water, by which everything else is made green.”

(Page 472)

Thereafter, for a period of one year from May 2003 to May 2004, the community of villages along the Bein did a massive amount of work cleaning the Bein from the village Dhanoa where the Bein originates to the Kanjli wetland. Waterweeds in the river were too dense and full of dangerous reptiles. To facilitate easy movement of the people along the Bein, a kutchra or a temporary 100 km-long road was built from Dhanoa to Kanjli. To spread this awareness further, anniversaries of the voluntary work were celebrated with great zeal and fervor.

In January 2004, the construction of ghats or banks (a series of steps leading down to a body of water) on the Bein was started. These ghats have been constructed along most of the Bein and were done with the participation of the community all along. Ghats were constructed at some places along the Bein which allowed easy access to the Bein. This

task was completed by April 2004 (Souvenir, 2004). Afterwards the task of cleaning the Kanjli Lake was started. The Kanjli wetland is located on this lake.

4.5 Roads

In India Sant Seechewal is popularly known as Sarkan wala baba (the saint of the roads). The history of roads dates back to when the celebrations of the birth of Guru Nanak dev ji were being organized in 1991. Sant found people had difficulty traveling on the paths and roads which were covered with mounds of sand and garbage dumps. The lack of decently kept roads also meant problems with the transportation system and access to other areas. Improvements on the roads started immediately with scores of people joining in and helping with machinery and other equipment. Thus a large network of roads measuring thousands of kilometres were constructed by the volunteers of the communities in the area (Nirmal Kuteya, 2004). A sense of community involvement has been instilled in the residents of the villages who participated and access to various places where conservation efforts are underway has improved.

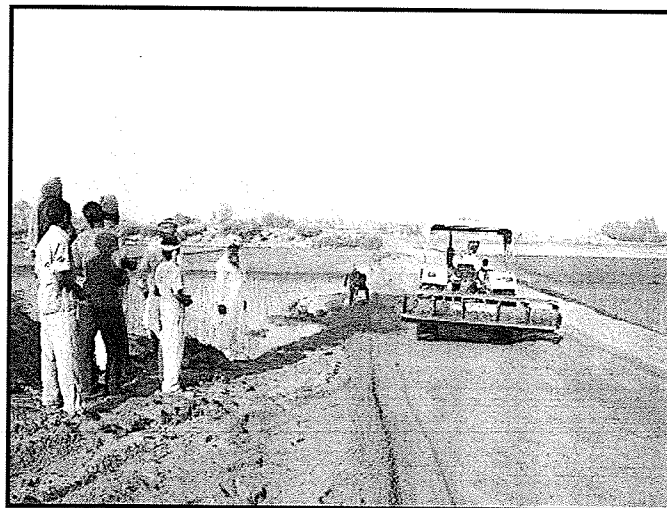


Plate 7. Machinery in use for road construction.

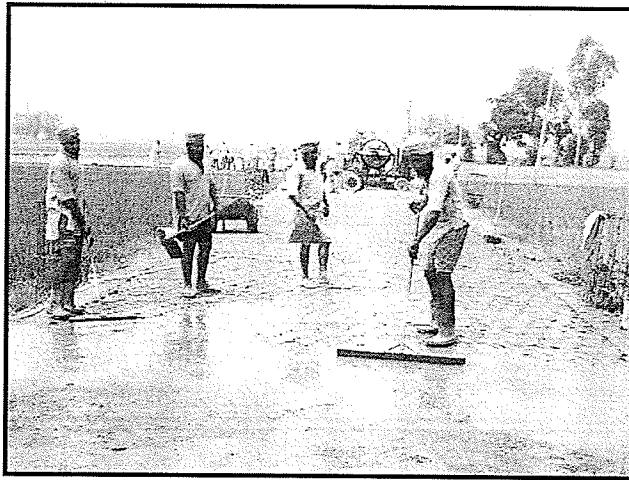


Plate 8. Paving of roads with community participation.

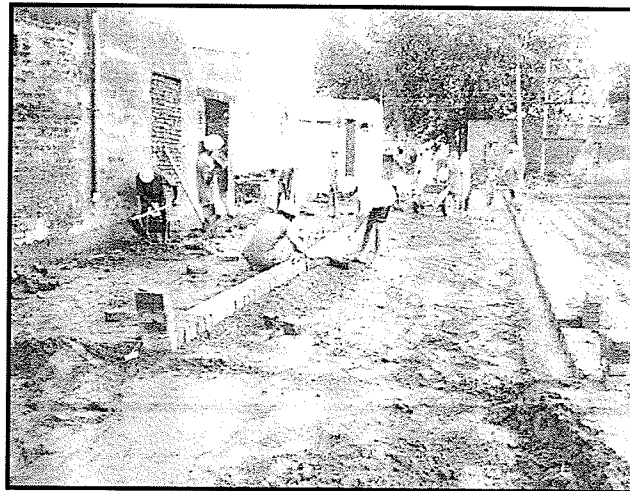


Plate 9. Construction of roads in a village.

4.6 Education

In 1999 Sant Seechewal and the villages discussed the need to start a school for the orphans, the poor and children of those individuals who were full-time volunteers with the Seechewal initiative.

He began this process by donating some money to Sant Sukhjit who was also involved in this initiative. This money was used to purchase books and other stationery items and Sant Sukhjit was to teach the children. In this manner the school was established in Nirmal Kuteya in Seechewal and inaugurated on May 27th, 1999. Volunteers acted as

full-time teachers and this led to more and more students from nearby villages enrolling in this school. At first 100 students were admitted, and the very next year enrollment doubled.

The school caters to the needs of the poor and needy students who cannot afford to attend private schools. The orphans are provided free room and board. The classes go up to Grade 10 after which students go to the college which offers both graduate and post-graduate courses (Nirmal Kuteya, 2004). This college in Seechewal has also been made possible by donations from many individuals. Donations came in form of land for the college and monetary contributions. Approximately 300 students are enrolled, including many who are not able to afford college fees.

According to Sant Balbir Singh Seechewal, being orthodox in the modern age does not lead to any kind of development. His views are modern and scientific. He is an advocate of the concept that humans should change with the times, and thus use modern techniques and new types of education for the benefit of all. Besides academics, students are encouraged to participate in sports and other activities including ongoing conservation issues. In 2001 computer education was introduced; the next year a big computer lab was established. Conservation of the environment is also an integral part of the curriculum in this school (Nirmal Kuteya, 2004).

The students are given training in preparing Ayurvedic (herbal) medicines which are distributed free of charge to anyone who needs them. Apart from teaching activities, students often go along to volunteer. This voluntary work motivates the children to

participate in conservation activities under the Seechewal initiative (Nirmal Kuteya, 2004).

Another school for the education of poor children has been opened by Sant Seechewal on the banks of the Kali Bein in the city of Sultanpur Lodhi. Free education and educational materials for this school are provided by the Ek Onkar Charitable Trust (Nirmal Kuteya, 2004).



Plate 10. Education being imparted on the banks of Kali Bein.

4.7 Social Activities

Sant Seechewal believes in the uplifting the poor and has undertaken many activities in this direction. Besides providing education and other basic amenities, people who have been ill-treated by society come to Sant Seechewal to get help in resolving family matters and other disputes concerning land and property. Generally there has been a change in the mindset of the people of this area. Many have gotten off drugs after getting involved in this initiative. Sant Seechewal has also been chosen as the Sarpanch (chosen head of

the village council) of the village Seechewal. This has led to acceleration in the developmental activities being undertaken (Nirmal Kuteya, 2004).

The first activity was the installation of the underground sewerage system in Seechewal. The problem of pollution caused by sewerage has been permanently solved and a treatment plant to treat the waste water has been installed in the village. The treated water from this plant is used for irrigation throughout the village. Its inner streets have been paved as well, whereas previously, people faced lots of hardships during the monsoon season (Nirmal Kuteya, 2004).

The caste system is still very rigid in rural areas and small towns, including Punjab. Thus the residential areas in Seechewal are demarcated according to the caste system. People from specific castes live in clusters of houses. Although the villagers recognize the existence of the caste system, they do not view it as an impediment to the growth of the Seechewal initiative. This has been proven by facilities being provided equally in every residential area which has resulted in more social cohesion between all villagers.

With the provision of roads and education people have benefited in different ways: employment generation, access to basic education, and accessibility to businesses in the city to name a few. With improved living conditions and the availability to basic amenities, there has been more cooperation and collaboration between people. They and their villages are involved in the Seechewal initiative as a community working towards a common goal of resource conservation which will ultimately lead to multiple goals (Nirmal Kuteya, 2004).

4.8 Seechewal initiative and EIA

The decision to start the work of cleaning Kali Bein has been unique in many ways. Sant Seechewal attended a meeting of intellectual and after the deliberations announced on the spot that the community volunteers will initiate the cleaning work of polluted Bein from the next day. This spontaneous decision did not involve the technical and financial planning. Deep conviction and firm determination appears to be behind such a decision.

The United Nations Environment Training Program Manual 2000 defines Environment Impact Assessment (EIA) as a decision making tool. It compares various alternatives for project and seeks to identify the one which represent best combination of economic and environmental cost and benefits. The community undertook this work without any consideration for cost inputs and did not participate in the work for some intended benefits. Sant Seechewal and community volunteers believed that cleaning and reviving of the Kali Bein will improve the environments and is in public good thus EIA and any prior planning was not undertaken (CSE,2006).

The Indian experience with Environmental Impact Assessment began in 1976-77 when Planning Commission asked the Department of Science and Technology to examine the river valley projects from environmental angle. This was subsequently extended to cover those projects, which required approval of Public Investment Board. On 27th of January 1994, the Union Ministry of Environment through a notification made Environmental clearance mandatory for expansion or modernization of any activity or for setting up new projects.

The new EIA legislation of Sept 2006 makes it mandatory for projects such as mining, thermal power plants, river valley infrastructure (roads, highway, ports harbours and airports) and industries including very small electroplating or foundaries to get environmental clearance. EIA was not carried out in Seechewal initiative as it does not come under the purview of EIA legislation (CSE, 2006).

4.9 Summary

In 1991 the Seechewal initiative started with the task of smoothing and clearing roads in the districts of Kapurthala, Jalandhar and Hoshiarpur in the state of Punjab. Sant Balbir Singh Seechewal was the individual who provided the leadership and motivated the communities of the area to join him in this monumental task. Improving the roads led to easy accessibility of goods and services for the people. This project paved the way for other developmental projects like underground sewerage, a piped water supply and the construction of educational institutes. The main gigantic task undertaken was the cleaning of Kali Bein. The cleaning of the Bein not only lead to the removal of water logging from the upstream area, but also provided the downstream areas with water for irrigation which has improved the agricultural crops in both the downstream and upstream areas. With the restoration of natural flow of the Bein, the underground water level has also risen in the areas adjoining the Bein which has led to more efficient irrigation facilities.

CHAPTER – 5: SEECHEWAL ENVIRONMENTAL INITIATIVE - FINDINGS

5.1 Introduction

To gain a better insight into the impacts in terms of the social, environmental and economic benefits of the Seechewal initiative, interviews were carried out. These were conducted in the village Seechewal, Talwandi Madho, Sherpur Dona, Sultanpur Lodi and Kapurthala. The respondents indicated that some of the major issues they faced have been resolved although there are still many outstanding issues.

5.2 Demographics

The interviews were made up of semi-structured questionnaires. A total of 101 individuals were interviewed- 40 males and 61 females of different age groups (Figure 1)- as the composition of the community was very diverse in terms of age groups, gender, occupation and education. People's ages varied from less than 20 years to more than 60 years. Forty-three percent of those interviewed were 20 to 30 years old. The under- 20 years of age constituted two percent of the total sample size. Those between 31 to 40 and 41 to 50 years constituted 23 percent and 13 percent of the sample respectively. Respondent of 51 to 60 years constituted 12 percent and above 60 years, only eight percent were interviewed. In the total sample, 60 percent were females and 40 percent were men.

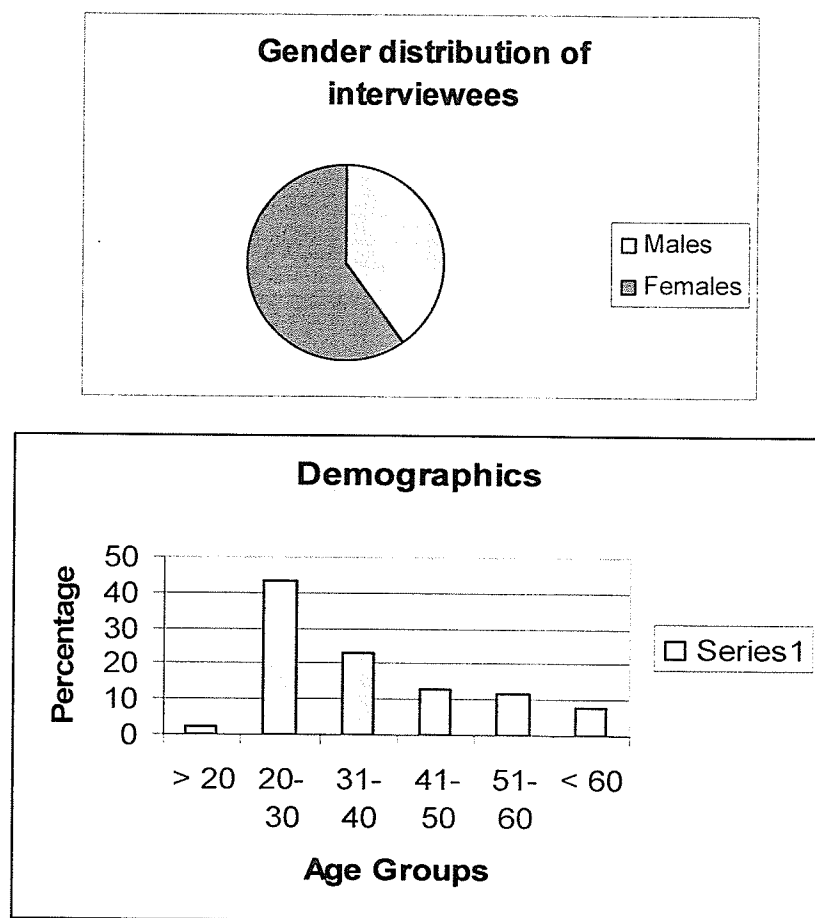


Figure 1. Age group distribution of the respondents

5.3 Perception of the Seechewal Initiative

Respondents interviewed had different perceptions of the Seechewal initiative. Of the total sample, 99 percent (n=100) had a good perception, while one percent perceived it with indifference. This sample size consisted of six graduate students from a college in Kapurthala who were aware of the initiative but were not associated with it at all (Kapurthala is the nearest town to Sultanpur Lodhi where the cleaning of the Kali Bein started.)

Various reasons were cited by different individuals for the perceptions they hold about this initiative. Sixty respondents noted, "Earlier there were no roads in this area which made traveling difficult but now there is provision of metalled roads in the area which

have eased our lives.” All the villages of this area previously did not have any provision for the collection and disposal of sewage. Sixty-three respondents mentioned, “A sewerage system for proper collection, disposal and treatment of sewage was introduced in village Seechewal initially.” They also mentioned, “Previously the ponds where the waste water from the villages was collected were located in a central place of the village which posed a risk in terms of unhygienic conditions, flies and mosquitoes, underground contamination of hand pump water and flooding during monsoon season. Now such ponds have been shifted to a place on the outskirts of the village. The waste water is treated by following principles of sedimentation and aerobic treatment. The proper treatment and disposal of waste water has led to more sanitary conditions.” Furthermore the treated water from these ponds is being used for irrigation purposes.

According to the villagers interviewed, “The village is generally much cleaner which has led to the eradication of dirt and decrease in mosquitoes and flies. Prevalence of diseases has also decreased in the area, which has resulted in a healthier and more productive community.” People have become more health-conscious and believe they have become more productive. Seventy of the respondents believed it is a good work that has led to the availability of good facilities like sanitation and a supply of piped water. The respondents also mentioned “the importance of increasing the green cover in the area”. They said, “Earlier there were no trees in some areas and even we were not aware of their importance but now Sant Seechewal has preached that we should grow more and more trees as they help in purifying the air around us.”

As a result of these efforts, the villagers mentioned they are being recognized by neighbouring areas for their cleanliness and good vegetation cover. The respondents

said, "Under the leadership of Sant Balbir Singh Seechewal, we have realized the importance of protecting the environment for our coming generations." The cleaning and reviving of the Kali Bein has led to a general improvement in the area. The cleaning and revival of the Kali Bein has led to multi-faceted improvements in the area, along with positive perceptions. Due to the revival of the regular flow in the Bein, the groundwater table has improved, and the ground water contamination and water logging problems have also been solved. Sixty-eight respondents said that with the cleaning of the Kali Bein, "Water logging problems in the areas upstream of Kali Bein have been solved and the agricultural production has increased in those areas which were water logged before. People in the water logged areas had to harvest their crops by keeping them on cots as they could not keep them on water logged ground."

Now people perceive their villages better to live in than towns and cities and are better aware of the principles to preserve the environment. There is a change in the way the community thinks about the conservation of their environment and the community is more involved in this selfless work. The respondents who were interviewed believed "that was it not for the community's effort, work of such magnitude could not be executed, as an ordinary person cannot even think of undertaking it. The development which has taken place is beyond one's expectation." According to them, "The Seechewal initiative has done a job which is beneficial to the people. The welfare works which were beyond one's imagination earlier, are visible in practical shape and all this has been possible with the community's effort."

This educational facilities at both the under graduate and graduate levels are available in the village Seechewal itself. The respondents said, "Before this initiative, girl students

were deprived of higher education as we as their wards were apprehensive in sending them to nearby cities for higher education.”

5.3.1 Reasons for the Inception of the Seechewal Initiative

Various reasons for the inception of this initiative were the backwardness of the area, the hardships faced by the villagers and the urge to change this situation. Seechewal and the adjoining villages were considered to be very backward in terms of development and environment degradation (see Map 3).

There were no proper roads connecting Seechewal and the other villages, and the few that existed were in poor conditions. Sixty percent of the respondents said, “There were huge sand dunes which were a hindrance to agricultural activities in the area. The land was highly infertile and no crop could be grown on it.” They mentioned that to improve the prevailing conditions for the welfare of villagers, the inception of the Seechewal initiative took place. Thirty respondents observed, “Government’s negligence to clean the filth and dirt in the villages was also one of the main reasons for the inception of this initiative. The government infrastructure had become ineffective in dealing with the problems arising out of environmental degradation. Also with time, we the people realized the need for a basic healthy environment.” Other respondents said, “Earlier it was impossible to pass by the Kali Bein, as it was a drain of dirty water and full of garbage. A foul smell was always emanating from it. People living on its banks had a hard time living in such unhygienic conditions.”

People also concluded there is a necessity for the development of rural areas so they do not have to relocate to towns and cities for better life. There was also an urge for the community to contribute to the development of the state and the nation.

According to 70 percent of respondents, "There is increased awareness about the need for the conservation of environment and our natural resources. We need clean air, pure water and a pollution-free environment for ourselves and the coming generations." In essence they considered it their duty to clean the environment and give the future generations a pollution-free environment. All these conditions led to the inception of the Seechewal environmental initiative.

All the respondents believe the Seechewal environmental initiative has been possible under the leadership of Sant Seechewal. They said, "A conscientious person cannot resist doing good work."

5.4 Community Participation in the Conservation Initiative

CBC is emerging as a trend in the conservation and management of natural resources and people are actively participating in it. In the Seechewal initiative, people have been associated with it in different ways, and they owe this to different reasons and aspirations. Respondents from the village Seechewal said, "It is our duty as residents of Seechewal to do whatever we can for this initiative. Residents of Seechewal and adjoining villages were faced with numerous problems in their day-to-day life. We had been waiting for the government to take some remedial actions to address the same but nothing was done for a long time. For the sake of solutions to these problems; we joined this initiative." The majority of the residents of Seechewal and the adjoining villages have been associated on account of the Kar sewa (volunteer service). People hold Sant Balbir Singh Seechewal in

high esteem and they are inspired by him and his efforts to motivate other people to conserve their natural resources. Their association is also due to "the fact that it is a common cause and thus participating in it will lead to fruitful results and a stronger community. Something good is being done by working towards the conservation of our natural resources and we wish to a part of this."

Villagers have been doing volunteer services and motivating their fellow villagers or their relatives to participate as well. They also contribute in monetary terms whenever they can and have been arranging free kitchens (Langar) for volunteers wherever work was in progress. Villagers offered their agricultural machinery in the cleaning of the Bein and helped to transport people and materials. Many people got involved in this initiative because they were impressed by the work being done on such a large scale for environment conservation. Numerous others were impressed by Sant Seechewal doing the Kar Sewa so they decided to join him. They mentioned "Sant Seechewal was doing a noble job which was affecting the lives of many individuals in a positive manner. We also encourage our friends and relatives to work towards this cause which will be beneficial to all in the long run." Students of the college at Seechewal and other places have been frequenting the Kali Bein and other places where developmental works was underway and thus they got involved.

The majority of people in the area did volunteer work at Kali Bein. According to the villagers, every day, early morning at around 2:00 a.m., a bus starts from the village Seechewal and heads towards the Kali Bein. Passing through a number of villages, the bus picks up women volunteers heading for the Kali Bein where they volunteer, cleaning

six kilometers of riverbanks on both sides of the Bein. This is done as a part of the maintenance measures for the Bein.

People from poorer localities in the village said, “Sant Seechewal took care of us so it is our duty to do whatever we can to contribute towards this initiative. We got access to all the basic amenities as people in other areas in the village had. We got clean drinking water, a sewerage system and volunteers planted fruit-bearing trees in our locality which provided us with shade and fruits.”

Many joined as volunteers because they realized it was for the welfare of humanity and not just for one individual. It was a common cause they all were working towards.

Before the inception of this initiative, there were no connecting roads from Sherpur Dona to other villages. Now there are five approach roads built by volunteer professionals from different fields like electricians, tractor drivers and mechanics. They said “We saw the change this initiative was bringing in the lives of the people of the area and we realized the need to be a part of it.” A journalist volunteered his time by reporting on various events and activities associated with the initiative.

5.5 Environmental Impacts

Respondents were quizzed about the vision they held about a perfect environment and there were many different perceptions. According to 20 respondents, “A healthy environment is one which is free from diseases and includes a clean place to live in with no mosquitoes and flies.” Some related it to “a mental state of pure thinking and full of flowers and fragrances” which in a way denotes a state of mind. For most persons, lots of trees and plants all around is a perfect state of environment. Some responded by

saying, “There should be no smoke of any kind (from burning of fossil fuels or waste management) in the surroundings and the surroundings should be healthy for breathing.”

Cleanliness is important for all individuals. It can be in the form of cleaner pathways, clean roads and no open drains in the village. According to 90 percent (n=91) of the respondents, “Hygienic conditions should prevail in our immediate surroundings.” One of the respondents said, “There should be harmony between human beings and nature and people should realize that without a healthy environment, future generations just cannot have a healthy life.” Respondents consider it their moral obligation and responsibility to give future generations a healthy environment and this can happen if there is a change in the individual mindset towards the environment. All 101 Interviewees said that there has been an improvement in the environment. No one responded in the negative or with any indifference.

5.5.1 Change in the Local Environment

People have observed a lot of differences in the local environment over the time this initiative has been launched. Sewerage system has been constructed in most of the villages and lots of trees have been planted which has led to a change in the landscape. People believe “this green cover has led to cooler environs and are also contributing to the availability of cleaner air.” Respondents mentioned, “Most importantly the people’s approach towards conservation of natural resources has changed.”

Treated waste water is now used for irrigation purposes, thus saving underground water and resulting in improved underground water table levels. People have reported a rise in water levels in the hand pumps installed in most households in the area. The respondents

mentioned that, "We have become more aware to stop misusing the water which we now preserve as a precious natural resource."

After this initiative was launched, visitors from far-off places came to see the model village of Seechewal and the changes brought about. The villagers are more attached to their home place and are proud to be residents of these villages which are now more developed because of the Seechewal initiative. Female respondents said "We do not feel like going to visit our parents' place. This is because the amenities which are available in Seechewal are not available in their villages and the environmental conditions are worse there."

People flock to the banks of the Kali Bein at Sultanpur Lodhi to see for themselves the changes in conditions. It has become a popular picnic spot and residents of Sultanpur Lodhi go there for their daily walk. This has led to a healthy lifestyle and a reduction in diseases amongst the residents. People of the area said, "The tree plantation drive on the banks of the Bein has given it a pleasant look and has motivated the residents of the town to help in this conservation effort." A plant nursery is also being run on the banks of the Bein by the trust headed by Sant Seechewal. Trees of all varieties are available for free and people who come to see the Bein receive trees as blessings from this nursery.

The flow of untreated waste water into the Bein has been stopped from almost all the towns and villages falling on its banks leading to cleaner water for irrigation and other purposes. The cleaning of the Bein has solved the water logging problems in some upstream areas of the Bein. The downstream side of the Kali Bein has seen a considerable

improvement in the water table levels. Now potable water is available from hand pumps and water from the Bein is even used for irrigation purposes.

Working towards saving the environment has become a way of life for people of this area. Though there is some opposition particularly from people who have encroached upon Bein land, the respondents are confident that “opposition will not last long and in the long run people will come to work together not only for their own good but also for the good of others in the community.”

5.6 Social Impacts

The social structure has been influenced in all villages where the interviews were carried out and had the most impact in Seechewal where this initiative started. To find out whether this was really true, interviews were conducted with people from both the areas, from where upper caste resides and also from the area where people from the weakest section of society reside in the village. The respondents from the lower caste opined “People in the village Seechewal enjoy equal privileges and basic amenities like a piped water supply, provision of a sewerage system, access to all other facilities and there has been no bias of any kind.”

People live peacefully in an environment of brotherhood, and their beliefs and thought processes have undergone a transformation for the better. Many respondents indicated that “earlier there were fights amongst the villagers over petty issue like water for irrigation, garbage dumping at inappropriate places, and using water from common wells to name a few.” Now with the availability of all facilities people reported “There is a better social cohesion amongst the society. Status consciousness is on the decrease and

equality is the order of the day.” Around 90 percent (n=91) of the respondents noted “Discrimination based on the caste system is on the decline thus signifying a change in the social structure of the society.” Respondents observed that the most important factor to strengthen the social bonds was “people from all religions and castes worked shoulder to shoulder during the kar sewa (volunteer work). The social structure of the community, the co-operation and understanding amongst the community has increased.” They mentioned now people think about each other and have become more humble.

People also opined that with the provision of better educational facilities and the availability of basic amenities, the quality of life has improved for everyone which has helped to erase the social discrimination experienced amongst community members.

Interviews with people from the Sherpur Dona village, which is just a few kilometres from Seechewal, indicated there were problems of drug addiction, habitual drinking and criminal tendencies among the village youth. After the launch of the Seechewal initiative, these young people gave up those bad habits for good and are now engaged in voluntary work. Respondents said, “After they joined this initiative as volunteers, their conduct changed for the better. They are earning and managing their livelihoods respectfully and are always ready for social work as volunteers. Due to the participation in the kar sewa or community service, use of drugs and drug addiction has reduced.”

When people from other areas visit Seechewal, their appreciation elates the morale of the residents which adds to their social status. People of all the villages surveyed indicated that gender discrimination has been reduced. All the interviewees, regardless of their residence, mentioned that the image of Seechewal has improved.

5.7 Identification of Existing Issues or Challenges

Apart from the work already done, other issues have been identified by the villagers the most important one being the provision of a hospital and a post office. They indicated that there are no qualified doctors in the area and the villagers have to rush to big hospitals in nearby cities, even for the smallest health problem. Second residents also mentioned, "Higher educational facilities need to be provided in the area and particularly computer education. Science education needs to be encouraged and trained teachers are required." Provisions for adult education are also in demand in these villages where the majority of older people are illiterate.

Depleting ground water problems needs to be attended to. People mentioned that "since the Kali Bein has been cleaned, other rivers in Punjab need to be cleaned too." Transport and commuting facilities need to be improved. The respondents said, "There is a need to take care of the environment which is degrading at an alarming rate. With growing awareness about the need to conserve energy amongst the populace, solar energy needs to be tapped." Street lights and overhead water tanks are also needed in some villages, and corruption needs to be eradicated to make the system more efficient and transparent.

5.8 Economic Impacts

According to the people of the area, numerous economic benefits have incurred since the inception of this initiative. The construction of roads was the most important development as it greatly benefited people as they can transport their agricultural produce to city markets where they get better remuneration as compared to small local towns. Eighty percent of the respondents mentioned "Because of road services, communications and better connectivity farmers can fetch quality farm inputs such as seeds and fertilizers

and input costs have been reduced. The construction of roads has also made mechanized farming possible and easier as heavy machinery can now move into and around the villages via the roads.” In essence there are better business opportunities and enhanced earning is possible. In addition, people from the villages are able to commute daily to big cities for better employment opportunities thus improving their economic conditions.

Real estate prices have also increased due to the construction of roads and sewerage system. General hygiene, cleanliness and greenery have attracted people from the cities who are returning to the villages. All basic amenities are available to them, and they are ensured of clean and open spaces as compared to life in congested big cities and towns. People also mentioned “Since the cleaning of the Kali Bein, the natural water flow has been restored which has led to the removal of water logging problems in the upstream areas. As a result, agricultural fields which were rendered useless due to water logging are now fit for agricultural activities. Quality of land has improved. The area is emerging as a model and land prices have gone up.”

The waste water and sewage from the villages is being used for agricultural purposes after treatment. Farmers have thus benefited from free, easily available water which has nutrients that are beneficial for the crops. Some farmers mentioned “Now we can grow and harvest three crops whereas before we were raising two crops at much higher inputs.” The prevalence of disease has reduced since waste water is being taken care of in a proper manner, which has led to reductions in the cost of medical treatment. People are now healthier and are able to contribute to the economic growth of the area.

The Kanjli wetland, which is of international importance and is on the Ramsar list is situated on the Bein. The cleaning of the Bein has solved the flooding problem of this wetland which was an annually recurring phenomenon. “This flooding used to affect our crops in adjoining fields,” people in Kanjli mentioned. Since this flooding has ceased, to happen now, the fertility of this land has increased manifold now.

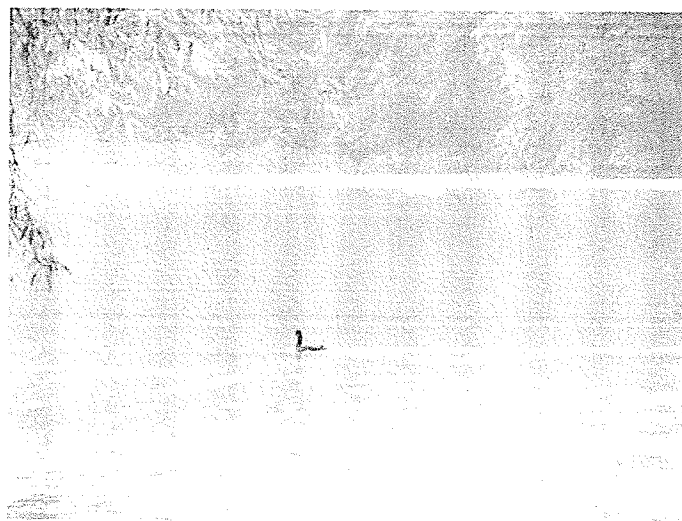


Plate 11- A view of the Kanjli wetland

Apart from the above benefits, respondents observed that “the provision of educational facilities has led to better employment opportunities. Moreover, since the education is locally available, local people believe that their future generations will have an opportunity to better their tomorrow.” Young people now believe in the dignity of labour and earning their living by working.

About 98 percent (n=99) of respondents believed the standard and quality of life has improved, whereas two percent thinks there has been no improvement. Eighty-seven percent (n=88) responded in affirmative while eight percent responded in the negative and four percent had nothing to say. Improvements have been in form of better living conditions, availability of basic amenities, improvements in environmental condition and

poverty alleviation. Ninety five (n=96) percent believed there have been improvements in the quality and quantity of community infrastructure while three percent said there was no difference at all.

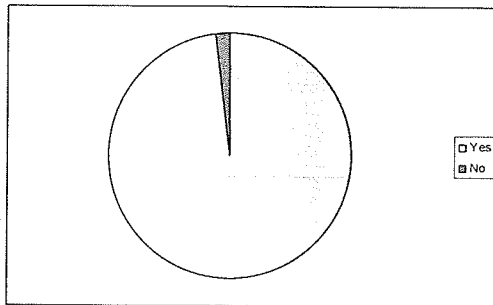


Figure 2. Responses representation for improvement in standard and quality of life

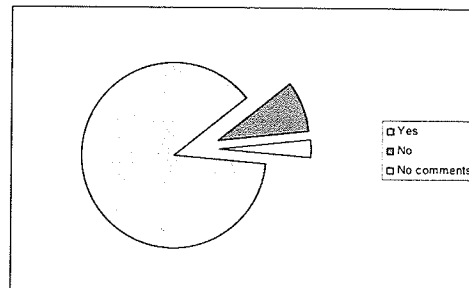


Figure 3. Increase in household incomes

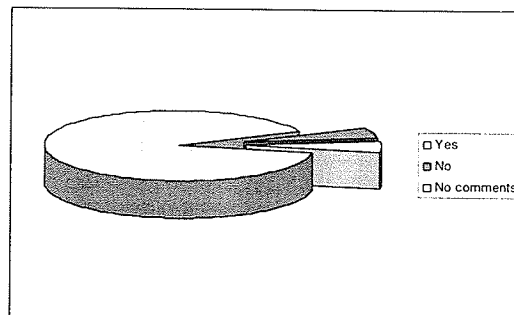


Figure 4. Increase in range of choices of consumption

5.9 Integrated View

5.9.1 Role of Religious Beliefs and Sentiments

There were variations in the responses when asked whether religious beliefs have played any role in their decision to participate in the cleaning of the Kali Bein. Forty-seven percent (n=48) said religious beliefs did play a part, while 46 percent (n=47) indicated they would have done this even if the Bein was not associated with the first Sikh guru, Guru Nanak. Around six percent of the respondents had no comments on this issue.

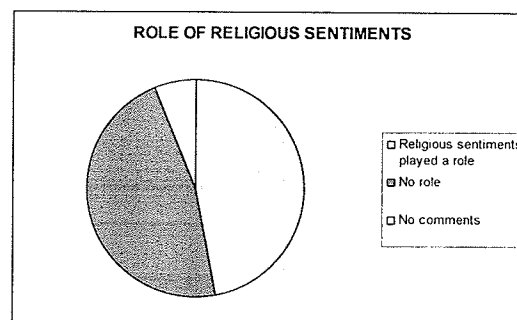


Figure 5. Role of religious sentiments

It should be noted that in the Sikh community, all Sikhs have been encouraged by their Guru (Shri Guru Granth Sahib- the holy book of Sikhs) to perform Seva or selfless service which is considered good not only for community relations but also for moral upliftment. It is a common phenomenon to find Sikhs engaged in free services in Gurudwaras, washing dishes or cleaning the floors. Sikhs are also encouraged to help the community by performing unpaid work, either in the form of various development projects or in institutions such as hospitals. Seva, from the Sanskrit root seva meaning to serve, wait or attend upon, honour or worship, is usually translated as “service” or “serving” which commonly relates to paid work paid, but does not convey the sense in which the term is used in Sikh traditions.

Some respondents mentioned, “Our Sikh scriptures have mention of the significance to treat ‘nature’ with respect and be a part in its conservation by means of Seva. We need to preserve our environment and respect it as we respect our holy scriptures.”

5.9.2 Initiative as a Role Model – Scaling up of the Initiative.

The question of whether the Seechewal initiative can serve as a role model for other communities in Punjab or elsewhere was answered in the affirmative by all the respondents. Some said many villages have already learnt from this initiative and started implementing development projects in their own villages. Sant Seechewal mentioned, “Village communities from far and wide in the state of Punjab are in the learning process and frequently go to Seechewal to see it for themselves and discuss any problems or doubts they have. They have also invited me to come and initiate the developmental projects in their villages.” The construction of sewerage system has been started in many villages and they are using the village pond to collect and treat the waste water before disposing it or using it for agriculture. (Towards the end of the fieldwork, the village of Busowal, a few kilometres west of Sultanpur Lodhi, was visited by the researcher where the community was in the process of laying sewerage lines and constructing sewerage treatment ponds along similar plans done in Seechewal.)

Most of the individuals interviewed believed that “any good work will always generate good thoughts, thus it can become a role model”. Also, this idea can be propagated by projecting the teachings that if we have some aim, we can achieve it through hard work. Respondents think that by spreading the word about the initiative to other communities, the environment of the whole area can be improved. People mentioned that the visit of the former president of India to the Kali Bein on August 17, 2006 and his appreciation

helped it to be seen as a model to be emulated. The respondents said, "These types of initiatives are not common in Punjab and therefore it appeals to everybody to follow this model and to imbibe the feelings of conservation."

5.9.3 Issues to be Tackled in the Future

The individuals who were interviewed acknowledged that much development had been achieved but a lot still could be done. They think the facilities that have already been created should be strengthened and properly maintained. Issues like education and the awareness of social evils like the dowry system, child marriage and female feticide need special attention. They also emphasized the need to be put on higher education for girls. There is the urgent need to continue community co-operation and keep the initiative active so cleanliness can be maintained. The villagers also said emphasis should be laid on the participation of future generations.

Respondents mentioned that people along the banks of the Kali Bein should stop dumping garbage on its banks and not discharge industrial waste into the Bein. As well, illegal encroachment along the Bein needs to be stopped and a green belt along the riverbanks should be extended further.

The majority of interviewees observed that unless people themselves realize the need to preserve the environment, nothing much can be achieved. Although there had been a sense of collective solidarity in the village, little organization or collective action had occurred until they were motivated by Sant Seechewal to do something for themselves. They also believed it is not often that somebody comes to awaken and encourage them to

deal with their problems or give them solutions. Despite the constraints, they strongly believe that opposition leads to more strong constructive action.

5.10 Spreading the Idea

Respondents said they will definitely encourage people from neighbouring villages to participate in this initiative as it is beneficial for all. Since this initiative is concerned with their welfare and the reform of their society; they will do everything they can to ensure that more people participate.

Due to a clean and healthy environment and this work being specifically for a better environment, they will do whatever they can to motivate their families, friends and acquaintances to work for a better environment. Since the end results have been inspiring, they believe people should learn from their example and keep their environment clean. Thus, as a gesture towards their fellow human beings, they believe everyone should get similar facilities.

The respondents said that joining this initiative and encouraging others to do so will be a boon for future generations. In this way Baba Secchewal has thought about future generations and challenged and encouraged them to join the initiative.

Around 95 percent of the respondents believe that doing good work in life is important because human life is precious. This work has not harmed anyone and has only led to developments in other peoples' lives, so they felt the community should be part of this endeavor.

One respondent said, "We can only encourage environmental conservation within our surroundings, as there is not much time to participate in Seechewal type of initiatives." Another one said, "No, because people do not have time to participate in such initiatives." These answers were from graduate students of the college at Kapurthala which is a well-known planned city in Punjab. These students are residing at a place with all the basic amenities, therefore they are not aware of the rural polluted environment.

5.11 Summary

The outcomes of the Seechewal initiative have been assessed broadly in terms of social, economic and environmental impacts. Data collected in the field shows significant improvement in the environmental conditions after the launch of the Seechewal initiative. The social structure of the area has also undergone a transformation after the community's participation. This has been possible by engaging in conservation and development activities as a community with a common cause. Working together as a social unit has helped the communities gain valuable skills and important experience which helps them to succeed in future management of their resources.

The economic conditions of the communities of the area have improved. Though exact figures which show concrete increases in income were not available from either the community or the concerned government officials, the visible prosperity of the residents demonstrated that income has steadily risen due to an increase in agricultural productivity and the availability of resources. Conservation efforts have played a major role as the restoration of the Kali Bein has impacted the local ecology in numerous ways. There has been an increased awareness amongst the community about the conservation efforts

which are ongoing and their long-term impacts. The Secchewal community is organizing itself informally to defend their rights and carry forward the conservation efforts.

CHAPTER 6: SUMMARY, CONCLUSIONS AND FURTHER RESEARCH

6.0 Summary

Community-based Conservation (CBC) is a concept which can be described as the conservation of biological diversity, wildlife or any other natural resource based on the involvement of local communities in the decision-making process. As a step towards studying this phenomenon in-depth, research entitled “An assessment of Seechewal Initiative in the State of Punjab, India: An example of Community-based Conservation?”, was undertaken by the researcher and examined in terms of a community-based conservation initiative. The main objectives of this research were to describe and understand the Seechewal initiative and to determine its participatory nature. The research also assessed the initiative in terms of environmental, economic and social dimensions, and examined the opportunity of extending its positive impacts of this initiative to other areas in Punjab. Further methods for scaling-up this initiative by other communities were also examined. Based on the results of a survey which included interviewing 101 respondents and field study, following conclusions have been reached. I start with specific conclusions pertaining to each of my four objectives followed by more general conclusions.

6.1 Community-based Conservation – Case Study of the Seechewal Initiative

Community-based Conservation has been many terms by different authors. A very basic definition is communities being involved in the decision-making process about the conservation of their natural resources (Kothari et al., 1998). The Seechewal initiative is an example of local communities being involved in decision making and conserving their natural resources and habitat. Data from the fieldwork shows community participation in

all the activities undertaken under the Seechewal initiative, and the decisions regarding these activities are taken by the community members after consultations. This initiative is a religious and environmental one which originally started in the Jalandhar district in the state of Punjab and later spread to adjoining areas. Initially the local community which was comprised mainly of residents from the village Seechewal was involved but as the initiative spread, communities from adjoining villages joined in wherever the developmental works started. It can be concluded that the Seechewal environmental initiative has some characteristics of CBC since it has the following aspects associated with it.

1. Presence of Leadership
2. Self-organization of the Seechewal Environmental Initiative
3. Community participation aimed towards conservation
4. Activities aimed towards conserving the natural resources
5. Significant improvement in the environmental conditions

Leadership played a major role in the Seechewal initiative. In CBC initiative, leaders can drive the process of human and financial resource mobilization and enlist support from various individuals and organizations to help organize it in the beginning. Leaders often take on the role of brokers or catalysts for initial organization as identified in CBC initiatives in Thailand (Senyk, 2006). In India, an illiterate West Bengal small-scale farmer took the lead in raising local awareness and organized his neighbours for forest protection. Such examples are numerous in India (Western et al., 1994). The Seechewal initiative is led by Sant Balbir Singh Seechewal who is also popularly known as "*Sarkan waala Baba*" (the saint of the roads). Under his leadership the work started in 1991

during a religious procession. An important assumption in CBC initiatives, as highlighted by Timmer (2004), is “leadership plays an important role in identifying problems and challenges, in determining possible solutions, and in producing a compelling vision that inspires others. Once this initial vision has been created, leaders can play a role in managing the process of achieving a set of agreed upon goals, in gathering resources and establishing organizational structures to address the problem, and in experimenting, learning and adapting to changing circumstances” Since 1991 the Seechewal initiative has evolved with multifaceted components associated with it.

This initiative includes the cleaning of the historical rivulet of Kali Bein that covers a distance of 160 km and joins the confluence of Beas and Satluj rivers. The Bein has been cleaned with the involvement of the community from the Seechewal area as well as from villages from afar. The cleaning of the Kali Bein, a river having significance in the local ecology has led to the restoration of barren agricultural lands and increased agricultural productivity. Multitudes of hands are still toiling to maintain that sparkle of clean water - the sparkle that had its roots in the days of Guru Nanak Dev, whose association with the rivulet has been recorded in the annals of Sikh history. All this has been possible with community participation under the leadership of Sant Seechewal.

6.2 Environmental, Social and Economic Impacts

The outcomes of the Seechewal initiative have been assessed in terms of environmental, economic and social impacts which are definitely related to each other. The economy and environment of any place are linked with the health of the people. A healthy environment is required for a healthy population and a healthy population results in a society which is stronger not only socially but also economically.

6.2.1 Environmental Impacts

People of the area under study have different visions of a healthy environment in terms of a physical state of environment and an individual state of mind. A perfect state of environment is where people can live in harmony with nature and contribute to its conservation. Comparing the major factors underlying the environmental degradation before 1991 (prior to the launch of the Seechewal initiative) and after 1991, it becomes clear what major changes have occurred. The installation of a system for proper collection, disposal and treatment of waste water in most villages has led to a cleaner environment. The incentives of introducing such a system played a major role in its implementation with community participation. The level of community participation refers to the degree that community members engage in a project and how open and democratic the consultation and decision-making processes are (UNDP, 2006).

Capacity-building within the local community was also required to conserve and manage the waste water treatment system. This capacity-building is important to achieve sustainable development in the face of innumerable pressures (Kothari et al., 1998). Proper management of the system has resulted in an environment free from flies, mosquitoes and the prevalence of diseases that were very common. Treated water is being used for irrigation purposes which have led to conservation of underground water.

Another positive impact for the environment was the cleaning of the Kali Bein. The rivulet served as a drain for waste water and dumping ground for garbage and all kind of waste and thus was clogged at many places. Due to cleaning the Bein, water logging problems in some areas upstream have been eliminated, and on the downstream side there

has been considerable improvement in the water table level. Potable (drinkable) water is now available from hand pumps and water from the Bein is being used for irrigation purposes. This is very significant as depletion of water tables in Punjab have attained huge proportions due an increased use of pesticide.

With the cleaning of the river, the Kanjli wetland (a wetland on the Ramsar list) which is situated on the Kali Bein has been restored to its original glory. This wetland plays a major role in the local ecology and its revival has been a boon to both the local population and local ecosystems. Working towards saving natural resources has become a way of life for the people of this area.

6.2.2 Social Impacts

The Seechewal initiative has strengthened the social structure of the area. This has been possible due to strong leadership and people having equal access to all basic amenities. Prior to the launch of this initiative, the social structure of the area was highly disorganized in terms of the caste system, the presence of social problems, illiteracy and many others problems. Being associated with a common cause and working for a common goal has instilled, a sense of goodwill and unity between people, which has transcended boundaries created by caste and class. In Seechewal, villagers enjoy equal access to basic amenities like access to drinking water, sewerage system, educational facilities and participate in the decision-making process. The community feels socially secure because of the transparency and accountability (especially in financial matters) of those in charge of local affairs, which is vital for the continued engagement and strength

of community participation. This requires effective channels of communication and information dissemination are present to facilitate transparency (UNDP, 2006).

There is better social cohesion, status consciousness is on the decrease, and equality is on the increase. Under the leadership of Sant Balbir Singh Seechewal, caste discrimination has been reduced considerably, thus signifying a change in the social status for less privileged people. People from all religions and castes worked shoulder to shoulder during the kar sewa (volunteer work). The social structure, cooperation and understanding of community members have increased and gender discrimination has been reduced in all villages with a community free of social problems emerging. Now people think about each other and have become more humble.

People believe that the provision of educational facilities, a reduction in pollution levels and other developmental works have led to improvements in the quality of life for all, which has helped to erase the social discrimination felt earlier.

Such social impacts have been greatly apparent in the village of Sherpur Dona, just a few kilometres away from Seechewal. This was indicated during field work some of the youth who had criminal tendencies and were habitual drinkers and drug addicts have been transformed into volunteers for the Seechewal initiative. Their conduct improved for the better and they started earning their livelihoods and volunteered for social work as required. Due to participation in the kar sewa (community service), the use of drugs and addictions has been reduced. Respondents indicated that people, who were previously doing drugs have totally stopped their habit. Visitors to Seechewal show their

appreciation for the village's efforts, which elates the residents and adds to their social status and morale.

6.2.3. Economic Impacts

Community-based Conservation initiatives worldwide have provided lessons for economic benefits which accrue as a result of such activities. The benefits do of course vary and need not be compared with any benchmark figure. No matter how important the long-term planning may seem, it is important to see short-term benefits if the CBC initiative is to succeed (Western et al., 1994). In economic terms, many benefits have accrued locally due to the Seechewal initiative. First and foremost is the removal of water logging in the upstream catchment area of the Kali Bein which has made 5000 acres of agricultural land fertile. Before the cleaning of the Kali Bein, farmers had problems growing and harvesting produce but now their agricultural production is more consistent. The Kali Bein can also be a source of revenue for the local community. The potential of Eco and religious tourism could be explored as there is a regular influx of religious devotees to Sultanpur Lodhi (a town of religious importance on the banks of Kali Bein) from India and abroad.

Due to good roads in the area, access to nearby towns and business centres has increased. Farmers have good opportunities to sell their finished produce at increased prices. Also, due to improved environmental conditions, more hygienic conditions prevail in the villages and the environment is generally more productive, thus a healthier society has emerged. The establishment of educational facilities has resulted in more students enrolling for basic and vocational educations which will ultimately lead to more employment opportunities.

6.3 Participatory Approach to the Seechewal Initiative

Participation theory describes the involvement of citizens or individuals who are directly affected by conservation initiatives in the decision-making process. It is concluded that the Seechewal initiative served as a means of encouraging community members to consider issues of common interest and to work towards achieving them. Community-based conservation is by its very nature participatory which was demonstrated in the Seechewal initiative where all the activities were undertaken and tasks accomplished by community participation. The Seechewal community faced common problems before the launch of this initiative which encouraged the villagers to participate as there were many potential benefits. Foremost among these was the ability to build local skills, interests and capacities. Other benefits included the ability to improve outcomes by extending the range of values and inputs into the decision-making process. There is also an increased probability of acceptance and successful implementation when decisions are seen as responsible and appropriate. Western argues that involvement enhances cooperation which increases the possibility of individuals dealing with each other. In addition, identification with a group, association or cause elevates common interests, even if an individual's motives for membership are self-serving (Western et al., 1994)

It can also be concluded from the Seechewal initiative that one of the main advantages of people's participation is that it encourages communities or groups to work together to achieve goals that are broader than those that can be achieved by individuals. The success of the Seechewal initiative was made possible with the community's participation. Many aspects can be attributed to this participatory aspect. People from all walks of life, not only from Seechewal and adjoining villages but also from far-off areas,

participated in the activities. The participation was initially encouraged by Sant Seechewal who motivated people during religious processions organized to raise awareness of the condition of the Kali Bein. The religious aspect played a major role and can be further examined from two perspectives. The concept of 'Kar Sewa' (community service) is mentioned in the Sikh scriptures as a way of life, and the majority of people's participation in the Seechewal initiative is based on this belief. The second perspective was the association of the Kali Bein with the first Sikh guru, which served as a motivating factor for people to come forward and clean the Bein.

6.4 Scaling-up of the Seechewal Initiative

The scaling-up of the Seechewal initiative has taken place with more stakeholders' being involved. This includes members of the Seechewal community, elected representatives of local panchayats, NGO workers, local officials, researchers, policy makers, government ministers and donors. This scaling-up has taken place in the form of a replication of principles, processes and technologies that were first put to the test in the village Seechewal. Replication has been done with the participation of the communities of local villages where work was initiated as well as the community from Seechewal. This has also been possible through the awareness campaigns organized under the leadership of Sant Seechewal to make people aware about the need to adopt eco-friendly measures for improving their environment. Communities of adjoining villages have been encouraged to replicate the technologies and processes that were first tested in Seechewal. As a result of these efforts, scaling-up of the Seechewal initiative has occurred in the adjoining villages of Talwandi Madho, Sohal Khalsa, Sherpur Dona and Kanjli.

As the researcher was informed by those community members in charge of the various developmental activities, work was underway to stop the flow of untreated waste water spilling into the Kali Bein. This was being done by diverting the flow into small treatment ponds constructed in these villages. The dirty sewage water was collected into these common ponds and after treating this waste water in indigenous manner, the clean water was supplied through pipelines to farmers for irrigating their fields. About seven kilometer of pipeline was installed which is irrigating 500 acres of agricultural land. To date this work has been completed in 22 out of 46 villages and one out of seven towns on the banks of the Kali Bein. Sewage treatment plants (STPs) have already been set up in the Sultanpur Lodhi and Kapurthala municipalities while four municipalities need the plants installed. Work is underway in other villages and towns situated on the banks of the Bein. The plan is to treat this waste water more thoroughly and use it for local organic farming.

After the former Indian president Dr. A.P.J. Kalam visited the Kali Bein to see the developmental works, many government and private organizations (for example, the Punjab State Council for Science and Technology, and the Punjab Pollution Control Board) have come forward to replicate this entire idea and concept in their respective areas of jurisdiction. The Punjab government has sanctioned a grant of Rs. 5 crores (\$ 50 million Cdn) to set up STPs to stop the flow of sewage water into another section of the Bein although the work has yet to begin. As observed by the former president of India during his visit to Sultanpur Lodhi, the Seechewal initiative can serve as a role model to clean the polluted rivers of the Ganga, Yamuna, Sutlej, Ravi and Beas in India. At the same time, for such an initiative to serve as a role model would depend on the

presence of able leadership, volunteers and the role of faith in motivating people to volunteer.

6.5 Limitation of the study

The Seechewal case study is an example of a community-based conservation initiative. As in other research studies, this study has also some limitations which are summarized below.

1. The conclusions which have been drawn from this study are based on the study conducted in five study areas. A study over a larger area including more villages may produce much different results and those results would be more generalizable.
2. Scientific data is not available to verify impacts which have occurred as a result of the activities undertaken in this initiative. For example, water logging has been removed in some areas in Punjab due to the cleaning of Kali Bein and there has also been changes in groundwater levels. But these changes in levels have not been measured using scientific methods due to lack of proper infrastructural support. This could be done in partnership with scientific organizations such as the Punjab State Council for Science and Technology whose aim is to harness the potential of science and technology as an instrument of socio-economic change. These changes could be represented in more concrete numbers in the outcomes of this study in the presence of scientific data. The presence of scientific data could also lead to other studies looking into different aspects associated with this initiative.

3. The Seechewal community does not have any proper arrangements to record and maintain documentation of the activities undertaken. A few records are available but they were not in chronological order, which was a hindrance in documenting and studying the initiative during the research.
4. Leadership has played a major role in the Seechewal initiative with Sant Balbir Singh Seechewal spearheading it. A replication of this initiative elsewhere may have different outcomes under different leadership.
5. The Seechewal case study is more specific to a particular ethnic group (i.e., a population of human beings whose members identify with each other, either on the basis of presumed common genealogy or ancestry or common cultural, linguistic, religious or territorial traits.) In this case the participating population which has been involved in this initiative or influenced by this initiative, both directly or indirectly, is from the state of Punjab and identify themselves as "Punjabis". Community service or seva has been preached in the tenets of the Sikh religion as a way of life, and in this initiative religion has played a major role in influencing people's willingness to participate. The success of an initiative on similar lines in any other community will depend to some extent on the religious beliefs, values and traditions the community holds.
6. Geographically Punjab is divided into three regions which are basically the areas between the three main rivers that flow through Punjab. They are Doaba, Majha and Malwa. The Seechewal initiative in Doaba is famous for its non-resident Indian population (NRI). This NRI population has been instrumental in providing financial help to this initiative, including money and material things like agricultural equipment, machinery and the land. Thus generalizations in this

study may not be feasible in the absence of similar conditions which have played a major role in the execution of various activities under this initiative.

7. For planning and executing any project from its inception to the final stages, project planning and management play an important role. However, in the Seechewal community, though the planning has been there in terms of community discussions and action, the technical part has been missing. There has been no preparation of blueprints that follow the globally accepted Program Evaluation and Review Technique (PERT) and Critical Path Method (CPM) processes. Undertaking a systematic approach as per the proven techniques may have influenced the final outcomes.

6.6 Further Research

There are additional areas in the Seechewal environmental case study that are interesting and worthy of further academic investigations.

1. Vast areas near and around the origin of the Kali Bein had been water logged earlier due to the choking of the rivulet. Once the rivulet got rejuvenated, these areas got rid of the water logging problems and farmers could now grow three crops a year instead of barely growing one. A quantitative study would be needed to document the true extent of these ecological improvements, but baseline data is lacking. A detailed study can reveal the qualitative and quantitative gain in the crop yield and growth in the earnings of the farmers.
2. The ground water level has increased along more than 52 kilometres of the Bein. The extent of this area, the change in the watertable, quality of water, savings in terms of

energy and money in using the water for irrigation, and its effect on the health of residents can be further investigated.

3. The people of the villages along this rivulet had been discharging their dirty water and sewage into the Bein. The communities came forward to stop this by constructing a sewerage system and sewerage treatment units. The treated water from these units is used for irrigation, and is taken to the fields via an under ground piping system. Conservation of water and the savings accrued in terms of fertilizer (used in agricultural fields) and the hygienic impact on the lives of village folks could be assessed.

4. Seechewal and Sultanpur Lodhi can be further developed by religious ecotourism projects - a project which could promote the concept of sustainability in tourism based on religious beliefs. The principles of conservation as envisaged in the holy book of the Sikhs combined with educational tools can be used for expanding this initiative for tourists or pilgrims who visit Sultanpur Lodhi every year for their annual pilgrimage.

5. The continuation of the Seechewal environmental initiative can be synchronized with government policies and rules, with the objectives determined by the communities and all participants working towards common goals of conservation and management of natural resources. If the existing areas of conflict with the government and other concerned organizations can be resolved, environmental initiatives such as Seechewal can go a long way in promoting the people-centred approach to conservation. Benefits of these kinds of approaches can be reaped by many communities, especially those in rural areas of India which are devoid of development projects.

6.7 Final Thoughts

The Seechewal initiative provides an interesting case study of CBC for numerous reasons: its strong grassroots origins, a perfect example of CBC where communities have joined hands under the leadership of Sant Balbir Singh Seechewal for cleaning the Kali Bein, and carrying out development works in Seechewal and adjoining villages.

The Seechewal initiative has affected the lives of the residents of the area in terms of social, economic and environmental impacts. Scaling-up of this initiative has taken place in adjoining villages and has served as an inspiration for other communities to follow, especially after the visit of the former president of India, Dr. A.P.J. Kalam. He wanted to see for himself the changed face of the Kali Bein which resulted in further encouragement for the community.

The study confirmed that a renewed focus on conservation and the management of natural resources by the communities is here to stay. Communities are being organized by various external or internal factors to manage their surroundings and resources. The process may be initiated by the community itself, as in the case of Seechewal, or triggered by the government, NGO or other agency. Motivations to participate in the initiative are numerous, ranging from conservation issues to benefits impact the community in many forms.

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Appendix A

Interview schedule

The following questions are designed to gauge your role in the ongoing Seechewal initiative and your perception of the changes in your surrounding environment it has brought about. This research has been approved by the Joint Faculty Research Ethics Board, University of Manitoba. If you have any concerns or complaints about this project you may contact the Human Ethics Secretariat at 204-474-7122.

If you are uncomfortable answering any of the following questions, please leave them blank. You also have the right to not fill out the survey. All information will be kept confidential. Thank you for your time.

Preliminaries

This survey will be carried out on the residents of the village Seechewal. The population as per village records is in the range of 1500-1600 people with approximately 250 households. The survey will be administered across 25% of the households depending upon the time and prevailing circumstances.

Demographics

1. a) Interviewee number/household no.
 b) Age
 Under 18- 20 ____ 20 to 30 ____ 31 to 40 ____ 41 to 50 ____ 51 to 65 ____
 Over 65 ____
 c) Gender: Male: ____ Female ____
 d) What area of the village do you live in?

Activities

2. a) What is your perception of the Seechewal initiative?
 1 2 3 4 5
 Very poor Neutral Very Good
 b) What according to you is/are the reason(s) for the inception of the movement?
 c) How have you been associated with the movement?
3. Environmental impacts.
 a) What is your vision of a healthy environment?
 b) Do you think that there has been an improvement in the local

environment since the inception of the Seechewal movement?

1	2	3	4	5
Strongly disagree		Neutral		Strongly agree

c) What significant differences have you observed in the local environment over time since this initiative has been launched?

4. Economic impacts.

a) Has this initiative improved/decreased your income?

b) Has it led to an improvement in any of the following?

- Standard and quality of life. Yes/No
- Level of income Yes/No
- Range of choice in consumption and the quality and quantity of community infrastructure. Yes/No

5. Social impacts.

a) Has this initiative changed the social structure of the community? Give examples

b) Do you think it has improved the image of the village in the eyes of other communities?

1	2	3	4	5
Strongly disagree		Neutral		Strongly agree

c) Do you think all the existing issues or challenges have been identified appropriately?

6. Integrated view

a) Have religious beliefs and sentiments played any role in influencing your decision to participate in the movement?

b) How this initiative can serve as a role model for other communities to follow?

c) What else according to you needs to be done or what other issues should be tackled in future?

d) Will you encourage your family/friends/acquaintances to participate in this initiative? If yes, why and if no then why not?

Appendix B

ETHICS APPROVAL CERTIFICATE

01 August 2006

TO: Manpreet Nigah (Henley/Sinclair)
Principal Investigator

FROM: Wayne Taylor, Chair
Joint-Faculty Research Ethics Board (JFREB)

Re: Protocol #J2006:075
Community based Approach to Conservation in India: Case Study of
Seechewal Environmental Initiative”

Please be advised that your above-referenced protocol has received human ethics approval by the **Joint-Faculty Research Ethics Board**, which is organized and operates according to the Tri-Council Policy Statement. This approval is valid for one year only.

Any significant changes of the protocol and/or informed consent form should be reported to the Human Ethics Secretariat in advance of implementation of such changes.

Please note:

- if you have funds pending human ethics approval, the auditor requires that you submit a copy of this Approval Certificate to Kathryn Bartmanovich, Research Grants & Contract Services (fax 261-0325), including the Sponsor name, before your account can be opened.
- if you have received multi-year funding for this research, responsibility lies with you to apply for and obtain Renewal Approval at the expiry of the initial one-year approval; otherwise the account will be locked.

Let's do more Kali Beins: Kalam

■ It was a matter of great pride for the entire Sultanpur Lodhi when no less a personage than President Kalam himself stood in heartfelt admiration of the great work done on the Bein

■ The *pandal* having a capacity of 10,000 was packed to the rafters while thousands stood outside and listened intently

ANJU AGNIHOTRI CHABA
SULTANPUR LODHI,
AUGUST 17

THE hard work of six years put in by Baba Balbir Singh Seechewal and his followers won warm appreciation from President A.P.J. Abdul Kalam today. The President called Baba Seechewal a 'scout-hearted baba' after visiting the Bein at Sultanpur Lodhi today and said the model of the Kali Bein should be adopted everywhere in the country especially by religious organisations. He assured that he would spread the message of this great work everywhere he went — India and abroad.

Speaking from the stage, he said he was very happy on seeing the beautiful water of the Bein and that he wanted to congratulate and thank babaji and all kar sewaks for their excellent work.

"When I was on the way I was asking myself what was happening at Sultanpur Lodhi. I should see it and I was also asking what type of a person he should be who has done it with a few kar sewaks," said the President.

"I asked myself can I have the names of such persons who have done great work and I found some names and what Maharishi Patanjali had written in his Yog Sutra 2000 years back is fit for Baba Seechewal as the maharishi had written that when your heart is big and has big objectives in mind then there is no limit and your big thoughts spread everywhere and you reach a big world and even your dormant powers wake up with great thinking," he said.

He said that he was thankful to the baba for not just his Bein work but also for making roads (he is also known as *sadaka wala baba*, that is the baba of roads) and opening educational institutes which he has been doing for the past 20 years.

He said he had also asked Punjab Deputy Chief Minister Rajinder Kaur Bhattacharya about the government's commitments towards the Bein and

she informed him that a Rs 60-crore project had been prepared for the Bein and in 18 months the project would be completed. "What I feel here is that along with the money the spirit of serving should also be adopted by the government," emphasised the President.

All the President's points

President Kalam said one should learn a lesson from the baba that "when we go to our respective religious places along with asking for our well being and prosperity we should also ask something more and every religious place should install a board carrying six points outside the place". He said these points should be: "One, I will clean the pond of my village, two I will not let domestic fights happen and look for solutions to all the court cases, three I will plant five saplings of trees, four I will not gamble and not take drugs, five I will give equal rights of education to both men and women, six and last I will act against corruption". He said that even if one point out of the six was adopted even by 10 per cent people a great service would be done to the country. "Let's start adopting these six points from Sultanpur Lodhi itself," he suggested.

People take oath to serve nation

The President asked the people present there to take an oath after him and the people did. The oath was: "To protect the nation, to overcome the sufferings, to new inventions and discoveries, I, the citizen of the country, will do hard work and will change the nation for its betterment with my knowledge in the service of Mother India."

Baba asks for institute

Baba Seechewal in his welcome speech conveyed his



President Kalam accompanied by Baba Balbir Singh Seechewal waves to people during his visit to the Bein. (Below) Volunteers try to keep visitors cool. Photos by Sarabjeet Singh

message to the President that there should not be any discharge of dirty water into the Bein, it should be free from encroachments, a green belt should be developed on its banks, 400 cusecs of water should be released into it and an institute of environmental studies should be established in the area.

Dy CM tries to take credit

Bhattacharya while praising the baba also tried to take the credit for the Bein project and said that it was the Congress government which had launched a Rs 60-crore project for the Bein and released 200 cusecs of water in it after a gap of 35 to 40 years. She announced a Rs 1-crore grant for Sultanpur Lodhi's development.



Kalam recognises Seechewal's exemplary effort

DHARMENDRA JOSHI

Sant Balbir Singh Secchewal's relentless efforts of cleaning the Kali Bein rivulet have started bearing fruit. The President, Dr APJ Abdul Kalam, has not only recognised his work but will be: visiting his Nirmal Kuteya in Sultanpur Lodhi of Kapurthala district on August 17.

Sant Balbir Singh, belonging to the Nirmal community, started the herculean task of reviving the Bein, sacred to the Sikhs for its association with Guru Nanak Dev, on July 16, 2000.

The Bein had turned into a virtual sewer as several drains from Kapurthala and Hoshiarpur flowed into it. The Sant himself jumped into the muddy waters and began removing the hyacinth. The act attracted hundreds of his followers to the rivulet.

There is an interesting incident behind the initiation of the 'kar sewa'. Several intellectuals held a meeting in Jalandhar to discuss the pollution of holy Kali Bein in July, 2000. All the speakers expressed concern over the polluted rivulet. In his address, the Sant advised the participants to do something practical to save the Bein instead of just shedding crocodile tears. He made an announcement there itself of starting the 'kar sewa'.

Sant Balbir Singh, a college dropout who hails from Seechewal village of Jalandhar district, and his followers first began pulling out the weeds manually. Gradually the number of followers grew and villagers joined in the cleaning operation with tractors and mechanical equipment. During the 'kar sewa', not only was the Bein cleaned, but a wide road was also built on its banks.

According to a survey, Sant Balbir Singh's work on the Bein was estimated to cost about Rs 50 crore before June 6, 2003. His followers and the environment lovers donated all the money. In January 2004, bathing ghats were built on the



Volunteers inspired by Sant Balbir Singh Seechewal (below) clean the Kali Bein rivulet during 'kar sewa' initiated by the Sant six years ago.

holy Bein at Gallowal. With this began construction of a series of ghats and for the first time in the history of revived Kali Bein, the festival of Baisakhi was celebrated on the banks of the Bein in 2004. In July 2005, the Sant started an expedition to make the holy city of Sultanpur Lodhi green by planting several saplings.

The 'kar sewa' not only helped in cleaning the Kali Bein but it also benefited residents in many ways. Several areas of Dasiya and Mukierian in Hoshiarpur district have got rid of water-logging as the flow of water was restored. Now the residents of these localities are able to cultivate their land. Similarly, the water table has started improving in several parts of Kapurthala district with the restoration of flow of water in the Bein. As much as 200 cusecs water is being released into the Bein from the Muketian Hydrel Channel to ensure regular flow. Sant Balbir Singh's efforts may be taken as a role model to clean the polluted Ganga, Yamuna, Sutlej, Ravi and Beas and other rivers.

A five-member delegation

led by Sant Balbir Singh met the President at Rashtrapati Bhavan on April 21 this year and apprised him of their work. Impressed by the Sant's efforts, the President accepted his invitation to visit the Bein. Thereafter the effort found mention over a dozen times in Mr Kalam's speeches.

The Sant's joy knew no bounds early this month when he received a fax message from Rashtrapati Bhavan stating that Mr Kalam would visit the Bein on August 17. The President will not only make an aerial survey of the cleansing operation of the Bein, but is also scheduled to pay obeisance at Gurdwara Sant Ghat, where Guru Nanak Dev reportedly re-appeared after a three-day dip in the rivulet. He will also go to Nirmal Kuteya, and is also scheduled to lay the foundation stone of Guru Nanak Art Gallery besides planting a sapling in the Nirmal Kuteya complex and inaugurating a photo exhibition there.

Sewage Treatment Plants (STPs) had already been set up in Sultanpur Lodhi and Kapurthala municipalities but the same are still to be installed

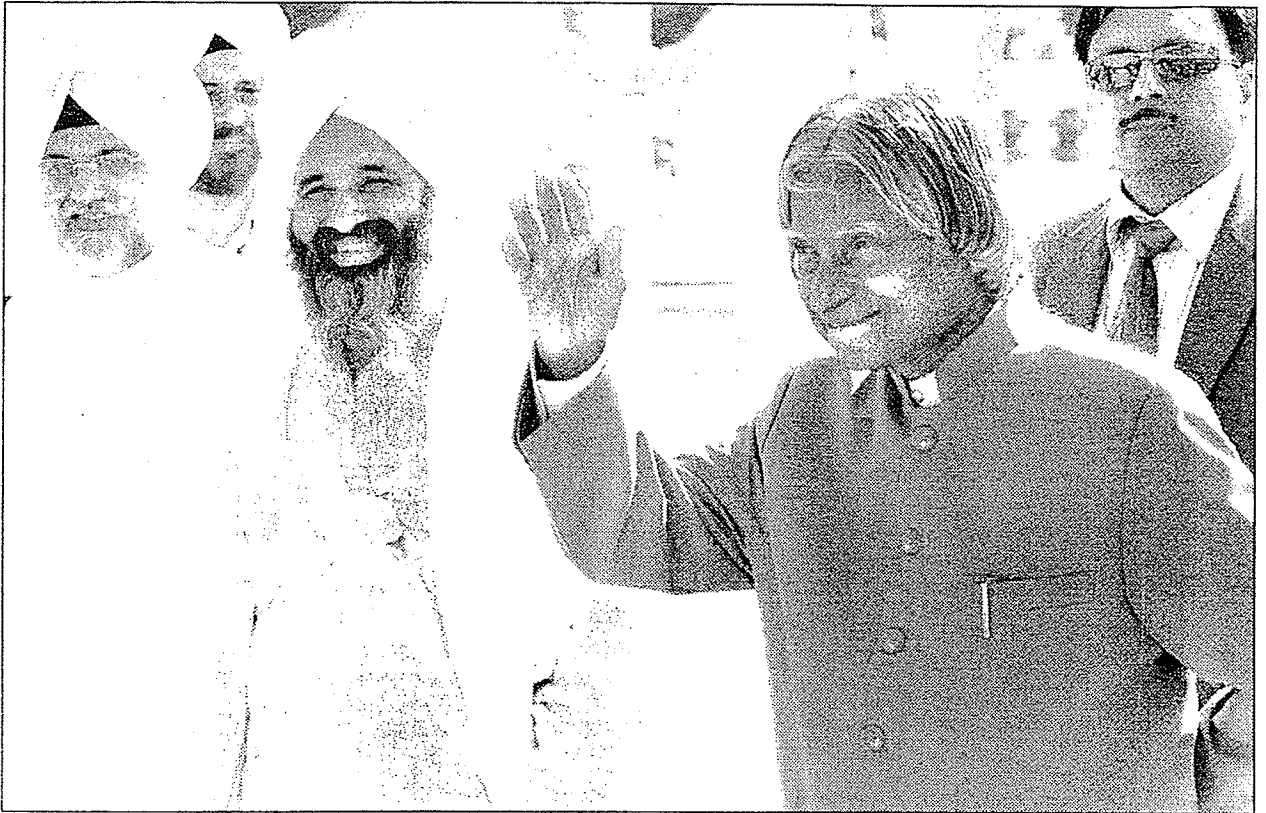


at four municipalities- Bholali and Begawal in Kapurthala district and Dasuya and Mukerian in Hoshiarpur district- located along the Kali Bein to stop permanently the flow of sewage into it. Similarly the ponds in 42 villages located on the banks of the Bein are to be widened and repaired to stop the flow of sewage into the rivulet. While the Punjab Government has sanctioned a grant of Rs 5 crore for the purpose, work on installing STPs is yet to begin.

Before the Kali Bein 'kar sewa', the Sant was known as 'Sadkan Wale Baba' (road-making baba), as he is credited with making about 500 km of link roads in the Lohian, Nakodar and Sultanpur Lodhi areas.

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Use religious places to reform people: Kalam



The President of India, Dr A.P.J. Abdul Kalam (right), waves to followers of Baba Seechewal at Sultanpur Lodhi on Thursday. Dr Kalam visited the town on an invitation by the Baba to see the progress of the cleaning-up work at the holy rivulet of Kali Bein. Tribune photo: Pawan Sharma

DHARMENDRA JOSHI
TRIBUNE NEWS SERVICE

SULTANPUR LODHI

(KAPURTHALA), AUGUST 17

President Dr APJ Abdul Kalam urged that the worship places in the country should be used for reforming people. He was speaking at Nirmal Kuteya here today where he came on the invitation of Baba Balbir Singh Seechewal, the man behind cleansing of sacred rivulet Kali Bein.

Dr Kalam said that the people should pledge six-points while visiting a temple, mosque, gurdwara and church. They should pledge that they would clean at least one pond during lifetime; they would put an end to domestic disputes and court cases, if any; they would plant five saplings of differ-

ent fruits at their respective houses and would ensure their growth; they would not gamble and take drinks; they would give equal importance to their sons and daughters and would not indulge in any type of corruption.

The President said that if every Indian acted according to any to the six-points our country would further improve a lot. The people of Sultanpur Lodhi should initiate adopting these points, he said, adding that he would ask the people of other parts of the country to do so from time to time.

Giving a pat on Baba Seechewal's back by congratulating him and his kar sevaks, Dr Kalam said that a few stout hearts did great things and the Baba was one amongst them.

Dr Kalam said Maharishi Patanjali had written in his book Yoga Sutra that, "When you are inspired by some purpose, nothing remains impossible for you." This sentence fitted to the exemplary work done by the Sant.

The President said that what was being done by Baba Seechewal, had the same things been performed at other religious place, India would have become a better place to live. The Baba was not only doing his best to cleanse the Bein for past six years but also he had done a lot to provide better education and construct roads in Jalandhar and Kapurthala districts, he added. Dr Kalam said that the voluntarily service of the Baba's team and the government's commitment should go together for

further cleansing the Bein.

Earlier welcoming Dr Kalam, Baba Seechewal demanded that the quantity of water released from the Mukerian Hydel Project at Talwara should be increased from 200 cusecs to 400 cusecs. He said that green belt should be developed up to 250 metres on both sides of the Bein.

Punjab Deputy Chief Minister Rajinder Kaur Bhattal said that the government had already sanctioned Rs 60 crore for the cleansing of the Bein as recommended by the technical committee constituted for the purpose.

Earlier, Dr Kalam paid obeisance at historical Gurdwara Sant Ghat, where SGPC chief Avtar Singh Makkar presented him a siropa.

Another Kali Bein effort can save Budda Nullah

JUPINDERJIT SINGH
TRIBUNE NEWS SERVICE

LUDHIANA, AUGUST 24

When President A.P.J. Abdul Kalam visited Sultanpur Lodhi last week to see the transformation of the holy Kali Bein, a rivulet-turned-polluted drain, Ludhianavis wished that he had flown over the Budda Nullah — the sorrow of Ludhiana — to see the extent of damage caused by industrial pollution.

The Budda Nullah, the Augean stable of the region, has been flowing dirty for the past several decades, contaminating groundwater, leaving poisonous and harmful residuals in vegetables, spreading disease in the areas it flows into before finally polluting the Sutlej after it falls into the latter near Mallikour village.

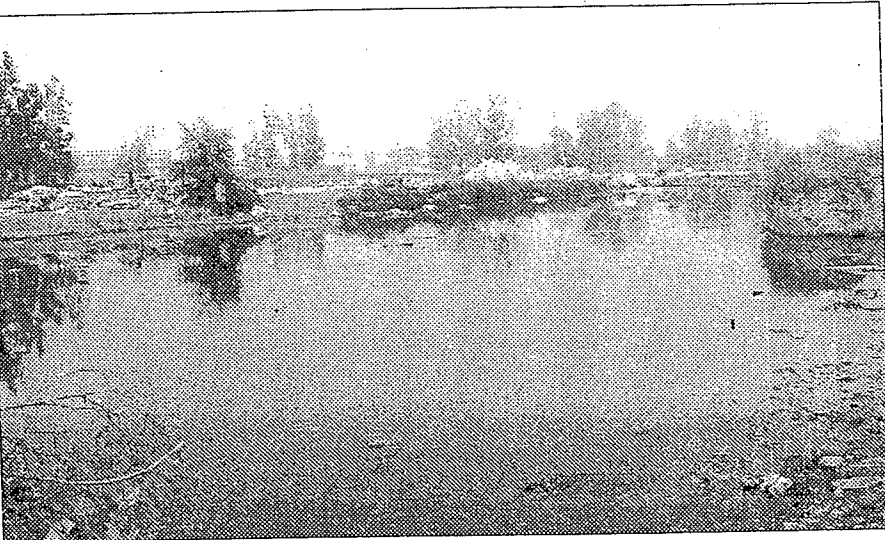
All this while, the government, the Punjab Pollution Control Board, and the Municipal Corporation, Ludhiana, have been making lofty claims about schemes for cleaning the nullah.

But it seems only an initiative akin to the Kali Bein can cleanse the nullah.

The Budda Nullah has been a bane not only of city residents but thousands of others who live alongside it.

Not only do the residents have to confront water-borne diseases every year, they also have to bore deeper tubewells to get drinking water, as the groundwater has been contaminated with pollutants from the nullah.

Notwithstanding the claims of the Punjab Pollution Control Board (PPCB)



A view of heavily contaminated Budda Nullah in Ludhiana.
Tribune photo: Sayeed Ahmed

that all industrial units in the city were treating industrial waste, effluents, including lethal heavy metals like lead, nickel, cadmium and chromium, are finding their way into the nullah and the groundwater.

A number of studies have established how industries have been polluting the nullah. The Tribune had earlier this year exposed how three treatment plants, working for the past several years, treated just the sewer waste and not the industrial waste flowing into it.

Under the board rules, an industry can allow only a certain amount of pollutants to flow into the sewer, which joins the nullah.

But as the water has not been treated for industrial waste, the pollutant level has gone up considerably over the years.

A study carried out by a team led by Dr Mukand Singh Brar, Department of

Soils, Punjab Agricultural University, had stated that a high concentration of toxic metals was present in tubewell as well as handpump water samples taken from the areas adjoining the nullah.

An earlier study by Prof B.D. Kansal (retd), Department of Soils, PAU, had shown that the nullah was clean till Dhanasu village, from where it entered the city. After that the presence of heavy metals shot up considerably.

The presence of heavy metals in the groundwater has become a cause for concern for city residents as these are known to cause cancer in humans.

Ironically, the water of the nullah, which eventually falls in the Sutlej, is consumed downstream in the Abohar-Fazilka belt and further down by residents of Rajasthan.

Ludhiana has already been grappling with air pollution, caused by effluents

from industry, which has led to respiratory disorders.

According to an estimate of the TB Eradication Society, Ludhiana, over 10,000 persons have been afflicted by tuberculosis due to air pollution. The study reiterates that the flow of effluents is leading to the presence of high concentration of toxic metals in vegetables grown alongside the nullah.

The study claims that the concentration of lead, chromium, cadmium and nickel in the groundwater around the nullah was 21, 133, 280 and 300 times higher, respectively, than the permissible limit.

Similarly, the concentration of these metals in vegetables and other crops irrigated with this water was 4.88, 3.95, 0.25 and 3.68 mg per kg. The study suggests segregation of industrial and domestic waste as the only measure to save the nullah and the groundwater from contamination.