

MANAGEMENT PLAN FOR KESHOPUR CHHUMBI
GURDASPUR

2018-
2028

**MANAGEMENT PLAN FOR
KESHOPUR CHHUMBI
COMMUNITY RESERVE,
GURDASPUR**



WILDLIFE DIVISION PATHANKOT
PUNJAB FOREST & WILDLIFE
CONSERVATION DEPARTMENT
2018-2028

WILDLIFE DIVISION PATHANKOT

ACKNOWLEDGEMENT

Keshopur Chhumb Community Reserve was made a reality after the creation of Pathankot Wildlife Division in 2006. It was a challenging task to convene series of meetings involving all Panchayats and stakeholders to convince them about new provisions of amended Wildlife Protection Act, 2002 (amended 2006) to conserve the wetlands without depriving them from their rights and ownership. The cooperation of all Panchayat members of villages Keshopur, Dalla, Miani, Matwa and Magarmudian is highly appreciated.

I express my sincere regards to Dr.Kuldip Kumar Sharma IFS, Principal Chief Conservator of Forest (WL) and Chief Wildlife Warden, Punjab for his inspiration and encouragement during the preparation of this Management Plan.

I am highly indebted to Sh. T.Gnana Prakash IFS, Conservator of Forest (Wildlife) Shivalik Hills Circle, Punjab for his sincere and valuable guidance. I am also thankful to Sh. Neeraj Kumar Gupta DFO (Wildlife) for his impressive suggestions and sympathetic attitude for the preparation of this Management Plan.

Last but not the least I thanks to all office and field staff of Pathankot Wildlife Division specially Sh. Sukhdev Raj and Mrs.Sapna Kaur Forest Guards for helping me time to time in completing this management plan.

Date--

Rajesh Kumar PFS
Divisional Forest Officer
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EXECUTIVE SUMMARY

The Department of Forests and Wildlife Preservation, Government of Punjab notified “**Keshopur Chhumb Community Reserve**” in June 2007. The protected area falls in Panchayat land of five villages viz. Keshopur, Dalla, Miani, Matwa and Magarmudian in Tehsil and District Gurdaspur. These wetlands were historically known, widespread and find mention in District Gazetteer in 1914 as Duck Shooting Grounds by Royals. But unfortunately, they are neither Ramsar sites nor National Wetlands, though qualifies for both. The new category of Community Reserve under Section 36C of Wildlife Protection (amended) Act in 2002 has been used in protecting community owned habitat with more inclusive wildlife conservation, active public participation of all stakeholders of the ecosystem without actually depriving the ownership or any other rights.

The area is comparatively rich in Avian Biodiversity and Harbors many rare and endangered flora and fauna.

This is second management plan of this community reserve. This plan has been written for the year 2018-19 to 2028-29 focusing on management of area with following objectives:-

- To secure the conservation of biodiversity and to enhance the status of Wildlife by habitat amelioration works in a natural way.
- To maintain and strengthen the protection measures against external disturbances
- To improve the quality of life of people living around CR by providing them with alternative means of livelihood.
- To promote conservation education and environmental awareness of local communities with the help of interpretation and development activities.
- To strengthen the activities of training, research and monitoring for effective wildlife in CR.
- To develop a mechanism for inter-departmental, inter-agency dialogue for achieving the broader goal of welfare of wildlife as well as local community.

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The management plan for “Keshopur Chhumb Community Reserve” has three parts.

Part 1- deals with:-

- Introduction to the area
- historical background
- climate, soil, boundaries and vegetation
- present status of the habitat and wildlife.

A Detailed description of important animals and birds of the Reserve are given.

- **Part 2-** discusses
- Objectives and strategies
- Detailed proposals for the management of CR.
- Detail and design of structural and other components
- Details of work done under IDIPT
- Waterfowl census, research and training
- Budget and financial forecast for next ten years
- Eco- tourism, IGA and Self Help Group Activities

The proposals include Habitat improvement, Infrastructure development for Eco tourism, Eco development, Income Generating Activities, Self Help Groups and the Constitution of Community Reserve Management Committee, Research, Training and Capacity building for staff and communities, Environmental education and Outreach awareness programmes.

Part 3- contains annexure

- Notification of the Reserve,
- List of Flora
- List of Fauna
- Waterfowl census report of previous years
- Weather summary of Gurdaspur district
- Detail of land used in CR

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PART-I

KESHOPUR CHHUMB COMMUNITY RESERVE



THE PRESENT SITUATION

CHAPTER - 1

INTRODUCTION

DEFINITION OF WETLANDS

Wetlands have also been described as ecotones, providing a transition between dry land and water bodies. *Ramsar International Convention has defined wetlands as "areas of marsh, fen , peat land or water, whether natural or artificial, permanent or temporary with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters"*. Specifically, wetlands are characterized as having a water table that stand at or near the land surface either permanently or seasonally for a long enough period each year to support aquatic plants.

India is endowed with a wide variety of wetlands like marshes, swamps, open water bodies, mangroves and tidal flats and salt marshes etc. They are integral to a healthy environment. They help to retain water during dry periods, thus keeping the water table high and relatively stable. During periods of flooding, they act to reduce flood levels and to trap suspended solids and nutrients to the lakes than if they flow directly into the lakes. The removal of such wetland systems because of urbanization or other factors typically causes lake water quality to worsen. In addition, wetlands are important feeding, breeding, and drinking areas for wildlife and provide a stopping place and refuge for waterfowl. As with any natural habitat, wetlands are important in supporting species diversity and have a complex and important food web.

1.1. NAME, LOCATION, CONSTITUTION AND EXTENT

Wetland at Keshopur is typically a fresh water wetland with more vegetation and shallow water levels which is located between Latitude 32°05' 16.3" N and Longitude 75°24' 24.2" E at an altitude of 245 m.

The reserve comprises of fresh water marshes (natural wetlands) presently to an extent of 850 acres. The entire community reserve is on two marshes, the major one being Miani, Dalla, Keshopur and Matwa as contiguous wetlands and Magarmudian as another portion. The wetland is completely owned by the above five village Panchayats (shown in table below):-

S No.	Name of Village	Total area of the Panchayat land (Acres)	Area under Wetland (Acres)	Agriculture (Acres)
1.	Miani	610	400	-
2.	Keshopur	394	136	15
3.	Matwa	520	51	21
4.	Dalla	388	152	7
5.	Magarmudian	651	111	116
Total area of the reserve		2563	850	159

These wetlands once historically spread over few thousand acres from Paniyar till Ravi River are now shrunk to two pockets due to the construction of drain (Doga Nala) and conversion of wetland habitat into agriculture and fisheries ponds. The wetland at Keshopur has been notified under Section 36 C of Wildlife Protection Act, 1972 (amended upto 2006) as Community Reserve to serve as a “Core Zone” for the purposes protecting, conserving the ecosystem and the migratory birds vide Government of Punjab Notification No: 34 /13/ 2007 / Ft-V / 6133 Dated 25-06-2007.

1.2. BOUNDARIES

The boundaries of the conservation area are described below:-

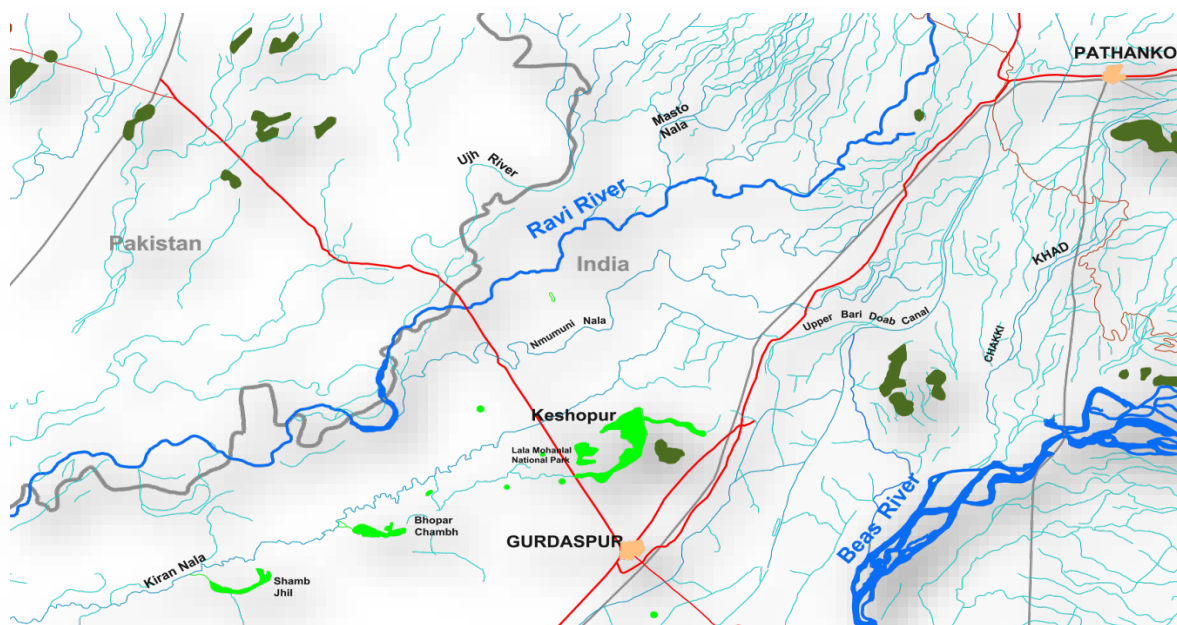
NORTH - Agriculture lands of village Shamsherpur and habitation of Village Miani.

WEST - Majithi Minor and Doga Nala crossing Gurdaspur- Dorangla road, Chhumb surrounded by Agriculture lands of Village Bhagawanpur

SOUTH - Agriculture land of Villages Keshopur, Sadhu chak & Bhukra.

EAST - Behrampur road and habitation of village Dalla.

1.3 LOCATION MAP OF KESHOPUR CHHUMB COMMUNITY RESERVE



1.4 APPROACHES AND ACCESS TO THE RESERVE

The Keshopur Chhumb Community reserve is approachable by Air, Rail and good network of roads. There are two airports nearby, one at Pathankot about 50 kms and other at Amritsar about 80 kms, those are connected to Delhi and Kangra and regular flights are available. The major Railway Stations are Pathankot / Chakki Bank (On Delhi to Jammu main line), Dinanagar and Gurdaspur on loop line of Amritsar to Pathankot. The reserve area is in two parts; both of them have separate access roads. The Miani village side is approachable from the main road between Pathankot to Gurdaspur from Dinanagar (12km) to reach Dalla or from Gurdaspur to Magarmudian side (6km). The areas are well connected by village road network.

CHAPTER – 2

BACKGROUND INFORMATION AND ATTRIBUTES

2.1 HISTORICAL BACKGROUND INFORMATION ABOUT KESHOPUR AND MAGAR MUDIAN COMMUNITY RESERVE AREA AS DESCRIBED IN THE DISTRICT GAZETTEERS OF GURDASPUR DISTRICT, 1914.

THE KAHNUWAN CHHUMB

A marked feature of the Bari Doab is the existence of numerous Chhumbs or swamps. The most noted of these is the Kahnuwan Chhumb, which runs almost the whole length of the Tehsil from Pindori Bainsan on the north to Bheri on the south, close under the old high bank or dhaia, as it is locally termed. This swamp is one of the most curious natural features of the tract. To the north it is narrow and shallow, but broadens and deepens until it attains a breadth of about 2 ^{1/2} miles and a depth in places of 6 feet or 7 feet between the Gurdaspur-Naushahra road and Kahnuwan. From the latter village on it has been considerably reduced and drained by an escape dug before annexation and improved under the supervision of the Irrigation Department after 1860, but there is still a line of swampy ground, which runs along under the dhaia to the southern boundary of the Tehsil. The Chhumb is referred to by Mr. Davies, Settlement Officer, Bari Doab, in paragraph 5 of his report on Tehsil Adinanagar, submitted in 1854. In his opinion it was due to inundations from the Beas, and it was probably in consequence of his remarks that the Pakhowal embankment was constructed. This embankment, built in 1856, used to run between Lahri and Jagatpur, a distance of some 5 miles between the river and

the swamp, and in the rains it formed an excellent road above the marsh. But it appears to have had no effect whatever in decreasing the area of the swamp and by checking inundation from the river prevented the deposit of fertilizing silt. The embankment was therefore allowed to fall into disrepair: it was breached at numerous points; and a few years ago almost the whole length of it was swept away. The people of course attribute the swamp to percolation from the Bari Doab Canal, and there is undoubtedly great loss of water from the canal along its whole length, where it runs parallel to and at a short distance from the old high bank: at the same time there must always have been much drainage from the Bangar down into the low lands and, with this unable to escape into the Beas, the formation of a swamp was inevitable. The main drain starting below Lahri runs through the centre of the swamp and carries a great deal of water: the number of lateral drains has recently been increased, and these have done much local good.

OTHER CHHUMBS

Parmanand, Dhamrai, Narad and Badi-ul-Zaman are smaller swamps in the west of and close to the Bari Doab Canal and chain of marshes stretches across the Gurdaspur Tehsil between the canal and the Kiran. The most important of these are the Keshopur, Magar Mudian and Paniar Chhumbs near Gurdaspur, and the Bhopar, Bucha Nangal, Naranwali and Dehr marshes on either side of the road from Gurdaspur to Dera Baba Nanak.

2.2 SIGNIFICANCE OF THE KESHOPUR CHHUMB COMMUNITY RESERVE

The wetland area is situated amidst the fertile agricultural lands with crops of rice, sugarcane and wheat on rotation and under cultivation forever. The wetland ecosystem is responsible for maintenance of water table in these areas at about 10-15 m and no deep bore wells were required till now for irrigation purposes. The wetlands also support cash crops like Lotus and Singhara, both are commercially valuable for their tubers. Few hundred acres of wetland in all the villages were given on 10 years lease for fisheries and agriculture and has been converted.

These wetlands are neither Ramsar sites nor do they find a place in National Wetland Map in India, though qualifies and deserve it. They are at the verge of extinction and disintegration due to public apathy. These wetlands are abode for about 25000 migratory birds that flock the area during winter migratory season starting from November till March every year. Abundant feed is available in these wetlands naturally and fishponds present in the area also cater birds. The birds that are found in the community reserve include important migratory birds viz. Gadwall, Pintail, Common teal, Wigeon, Mallard, Shoveler, Black headed gull, Brown headed gull, Booted Eagle, Marsh Harrier, Grey lag Goose, Ruff and Reeve, Garganey teal, Ruddy Shelduck, Spotted sandpiper, Green sandpiper, Spotted Red shank, Red shank, Little stint, Little ringed plover, Himalayan Pied Kingfisher, European lapwing, Red Rumped swallow, Bar Headed Geese, White Eyed Buzzard, Black winged kite, Common crane, Imperial eagle, Hen Harrier, Starling, Yellow headed gray wagtail, White wagtail, White necked stork, Marsh Harrier, Black Stork, Steppe eagle and Greater spotted eagle.

Few resident birds in the area are Sarus crane, Indian Moorhen, Little and Large cormorant, Common pochard, Little Egret, Median Egret, Large Egret, White breasted kingfisher, Grey Heron, Purple Heron, Darter, Dabchick, Coot, River tern, Red wattled lapwing, Wire tailed swallow, House swift, Common King fisher, Purple moorhen, Pariah kite, Pied myna, Painted stork, Black Partridge, Common Snipe, Indian Grey Hornbill, Hoopoe, Parakeets, Owl, Wagtail, Indian Robin, Woodpecker, Black kite, Spotted dove, Pigeon, Shikra, Drango and Egyptian Vulture to mention a few. Innumerable flora, fauna including mammals, reptiles and birds found in the dynamic ecosystem plays innumerable and important ecological, environmental, educational, ecotourism and developmental roles.

The wetlands are important biodiversity corridors that facilitate the movement of migratory birds. The area is also frequented by resident wildlife of the area especially Hog deer, Pangolin and Wild Boar. The wetland plays important ecological functions viz. recharging of ground water for sustaining agriculture, habitat for resident and migratory birds and rare and endangered species, stabilization of local climate, natural storage base for carbon and natural sinks for pollutants. It also plays Socio-Economic Functions as being major source of fisheries in the area, forest products for local residents with fuel, fodder for cattle, reed used for shelter and the area has high potential for scientific research and ecotourism.

2.3 PRESENT STATUS

- **Legal status and land tenure in the surrounding area:-**

The area is revenue land and entire area of CR falls under the ownership of the five Villages namely Miani, Dalla, Keshopur, Matwa and Magarmudian.

- **Leases:-**

Out of the total area of 850 acres of the reserve, 224 acres presently under the Chhumb (wetland) is less disturbed and the remaining areas are under active use as these are leased out for either fish farms or cultivation of Trapa (singhara) and Lotus (Bhein).

- **Human activities:-**

Major human activities in the reserve are water harvesting for agriculture, fish cultivation by private contractors, cultivation and extraction of singhara by contractors, local small scale fishing, cattle grazing, collection of fuel wood etc. 438.98 acre (49.03%) of the total wetland area is under fishponds. There are about 60 fishponds being operated in the reserve and the birds are forcefully driven away by the fishermen as some species of the birds feast on the fish from the ponds. This is evident particularly in the Northern part of the Chhumb where most of the fish ponds are located. A large extent of area is used for extraction of singhara traditionally and it is transported as far as Srinagar (J &K) by the private contractors who are given long terms lease of those areas by the Panchayats. There are more than 1600 cattle in the surrounding villages and many of these graze within the reserve. Poor families do depend on the reserve for seasonal collection of fuel wood. There are also reports of occasional poaching of birds, but due to increased awareness villagers provide information about illegal activities to the department. Small scale fishing by locals is also reported. Exact quantification of these dependencies will have to be carried out during micro planning processes for the villages.

- **Dependency on wetland:-**

As stated above the major dependencies on the reserve are fish culture and singhara cultivation which is basically for generating revenue by the local Panchayats. Around 15 fisher men families are engaged in the fishing activities of the wetland. Apart from the 15 local fisher men families, several families are directly dependent on the ongoing fisheries in the wetland. Other dependencies by the local people are in form of firewood collection, grazing and fishing that are carried out to meet their daily requirements. These activities need to be addressed and rationalized through eco-development initiatives. The contractors working for first two activities do provide some seasonal employment to the local people.

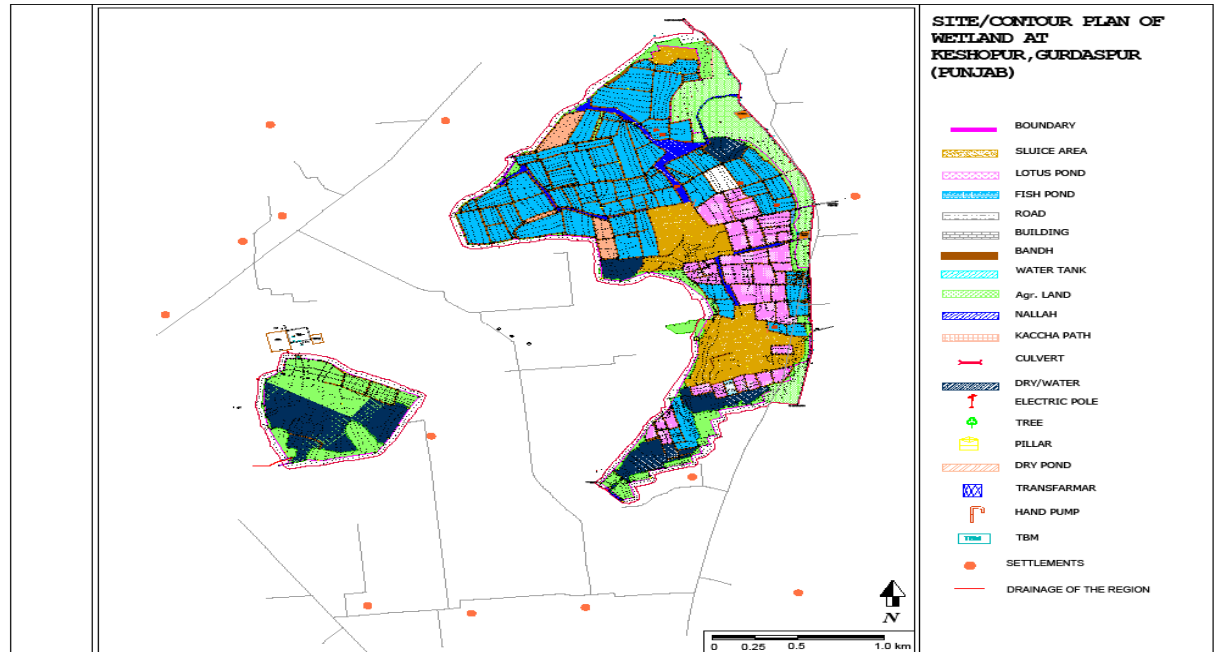
- **Tourism:-**

The CR has excellent potential of developing as an ecotourism destination. Ecotourism if carefully planned and implemented can provide opportunities for supplementing the livelihoods to the local people and hence protect the unique biodiversity of the area. There are facilities for the visitors including that for interpretation and conservation education at present at the site although the visitors to the areas are very low. A lot of works have been done by the Forest department with the help of ADB loan through Tourism department Punjab under the IDIPT Project during the year 2014-15 to 2017-18, the detail of which is given in Annexure.

2.4 LAND USE PATTERN

- **Lotus Ponds and Singhara Ponds:-**

Wetland waterfowl habitat is surrounded by intensive and permanent agriculture of wheat, sugarcane, rice on rotation. Part of wetland itself is leased for commercial production of Lotus and Water Chestnut (Singhara), both harvested for their tubers and rhizomes. Both Lotus Ponds and Singhara ponds are managed in terms of their productive value. So dead plant material and weeds are periodically removed resulting in comparatively better water quality. Also since birds do not pose any threat to Lotus and singhara crops Local farmers do not mind birds roosting and feeding in these ponds. Depth of these ponds is not as deep as fish ponds and is comparatively shallow (up to 1 m deep).



Detail map of the total survey

- **Fish Ponds:-**

Large part of wetland is leased by Panchayat for fish farming. In these parts of the wetland birds like heron and gulls are not welcome as they feed on fish. Hence bird spotting in the fishponds was very less. Also fishpond managers do not like trees near their ponds as it gives strategic position for fish hunting birds. Depth of fishpond is almost up to 2m; it is also maintained uniformly all over the pond. Edges of fish pond are completely devoid of trees and water overflow or connections to adjacent ponds are not encouraged. Fishponds were devoid of any excess growth of weed or vegetation, overall water quality is maintained to increase fish production.

- **Unleased Panchayat Ponds:-**

Unleased Panchayat land in the wetland mainly comprises of the major drainage path of the monsoon discharge. Huge bird population was observed in some parts of this land. Also highest growth of weeds like Eichhornia was observed in parts of Panchayat land which is unleased. Sewage disposal from adjacent villages also finds its way through this natural drain channel adding to organic load of the water.

- **Human Settlements:-**

Though there are no human settlements inside the wetland reserve area, the reserve is surrounded by various villages and is in close vicinity.

- **Agriculture:-**

Part of the wetland area and adjoining areas is under intensive agriculture and the cropping intensity is more than 90%. The main crops of the area are paddy, wheat, sugarcane and other vegetables.

2.5 GEOLOGY AND SOIL

The flood plains of the Ravi and the Beas are separated from the up land plain by Sharp River cut bluffs. They are low lying, with slightly uneven topography. Sand dominates in the soil structure of the flood plains, but it diminishes in both quantity and coarseness in the upland plain. There are number of local swampy depression popularly known as Chhumbs. The largest among them is the Kahnuwan Chhumb, which stretches along the Beas River in Gurdaspur Tehsil. Another swampy depression is the Keshopur Chhumb but this Chhumb along with other erstwhile Chhumbs of Dhan Rai, Narod Budiulzama, Paniar, Bucha Nangal and Naranwali have practically been reclaimed now. The soil is loamy with clay content below 10 percent. It contains small quantities of lime but the magnesia content is high. They are well supplied in potash and phosphoric acid but the quantities available are low. The agriculture is dependent to a large extent on the nature of its soil, which in turn, is influenced materially by climatic factors.

2.6 TERRAIN

The terrain is more or less plain and flat land. The wetlands are the depressions formed in the region and are shallow. Most of the adjoining area is under intensive agriculture and the drainage is good.

2.7 CLIMATE

2.7.1 TEMPERATURE

There are mainly two seasons i.e. summer and winter. The summer season falls between the months of April to July and the winter November to March. June is the hottest month and January is the coldest one. The dust storm occurs in the month of May and June. The mean temperature recorded from 2010 to 2015 is given in annexure.

2.7.2 RAINFALL

The south - west monsoon generally arrives in the first week of July and continues up to the end of August. 70% of the rainfall occurs during this period. The average rainfall of the district is about 800 -1200mm. The winter rains are experienced during January and February. The rainfall in the district is greater in the sub mountain parts of the district and decreases rapidly towards the southwest.

2.7.3 HUMIDITY, WIND AND DROUGHT

The humidity reaches its maximum during pre monsoon showers and during sowing season. The average relative humidity recorded from 2010 to 2015 is given in annexure. The wind is moderate and drought situation is not experienced in the area.

2.8 HYDROLOGY

Geo hydrologically of Gurdaspur district is divided into three units (i) Hilly on the north-eastern side. (ii) Kandi region and (iii) Sirowal and adjoining plains. In Kandi region ground water occurs under unconfined conditions. Depth of water varies between 10 and 40m below land surface. The ground water in this region is suitable for irrigational and domestic uses. The sub soil water depth ranges from 1.5 to 3m in most part of the wetland area.

2.9 WILDLIFE, STATUS DISTRIBUTION AND HABITAT

2.9.1 HABITAT ATTRIBUTES AND VEGETATION

The habitat is mostly freshwater marshy wetlands and inhabited by algae, phytoplankton, Lotus, Typha and Water Hyacinth at present. The wetland is also drained on all sides through Doga Nala minor on the southern side. The wetland is fragmented by number of agricultural fields and fish farms. They are mostly part of the wetland given on lease. The condition at the present context is not a serious threat but a condition of arrest of further degradation and conversion is stopped using the Wildlife Protection Act by Consensus. The Lotus and Singhara are cash crops from the wetland and are again given on lease/contract and yield considerable revenue to the village Panchayats concerned.

- **Vegetation:-**

Vegetation was studied during the field walk and they listed according to their occurrence in the Chhumb. Broadly vegetation has been grouped in to three categories.

1. Vegetation on Bunds
2. Semi Aquatic
3. Aquatic/ Submerged Vegetation

Vegetation on bunds is mainly herbaceous. The most dominant species in the bunds were *Cynodon dactylon*, *Parthenium hysterophorus* and *Chenopodium ambrosioides*, *Alternanthera Spp.*, *Erigeron Spp.*, *Cucumis hardwickii*, *Ageratum conyzoides*, *Ageratum houstonianum* and *Cassia Occidentalis*. Out of these *Parthenium* and *Chenopodium* are observed as invasive and potential threat to the native herbaceous species occurring in the Chhumb.

Apart from these, also some root and fruit yielding vegetation was observed on bunds which included Muli (Raddish), Sarson (Mustard). Especially Mustard plantation due to its bloom in winter season can attract insects, which in turn may be helpful for small birds.

Following species also can thrive in similar habitat and can add to variety of feeding and nesting habits for small birds

- Cucumis sativus*
- Cucumis Sp.*
- Cassia tora* (Takla)
- Ageratum conzoides* (Goat Weed)
- Saccharum spontaneum* (Kans Grass)
- Anabis multiflora* (Bhang)

Various grasses can be used on the slope of the bunds that can create safer habits for amphibian, ground nesting birds and also prevent soil erosion. Following are some of the species suggested to encourage their growth in the area.

Eragrostis cynosuroides (Dab / Darbh)

Cynodon dactylon

Saccharum spontaneum (Kans Grass)

- **Semi aquatic and Aquatic Vegetation:-**

The lotus dominated ponds had the species like *Nelumbo nucifera*, *Trapa natans*, *Nymphaea nouchali*, *Lemna minor*, *Ipomoea aquatic*, *Polygonum lapathifolium* and *Eichhornia crassipes*. Whereas ponds develop for Singhara (*Trapa*) cultivation has the species like *Panicum antidotale*, *Lemna major*, *Desmostachya bipinnata*, *Enydra fluctuans*, *Polygonum lapathifolium*, *Hydrocotyle sibthorpioides* and *Hygrophila polysperma*.

A mosaic of wet marsh meadows, which is mainly dominated by the species like *Ipomoea fistulosa*, *Arundo donax*, *Phragmites karka*, *Typha elephantine*, *Saccharum spontaneum* along with various other species forms a special habitat to support faunal diversity of the wetland in various ways, viz. nesting, breeding, food, as hide and enrichment of the soil.

- **Trees:-**

It was observed that the Chhumb is very sparsely surrounded by the big trees, which are very important for roosting of some wetland obligatory species like Herons, Cormorants, Egrets, etc. Further these birds also use these trees for their nesting called Heronry. Resident ducks use the hoes of the trees for egg laying. However a few trees were observed at the southern edge of the Chhumb. Secondly, the trees around the fish ponds are not acceptable to the community as they provide good perching site for fish eating birds and they block Sunlight in winter season not allowing water temperature to rise during the day. This harms the fish as winters are extremely cold in this region.

Local fish pond owners also suggested that the leaf litter adds to the organic load on the water body which is detrimental to the cultivated fish in the pond.

However it is suggested that tree plantation in clusters of native trees along with suitable shrubs and undergrowth should be encouraged in other parts of the wetland. These trees can demarcate boundaries of the wetland hence conserve the community reserve from further encroachment of agriculture and non wetland uses as well as further enhancement of the biodiversity of the region.

Following is the list of some native species of trees observed in the area:

1. Albizzia
2. Acacia,
3. Anogeissus,
4. Bombax,
5. Cassia,
6. Citrus,
7. Dalbergia,
8. Eugenia,
9. Mallotut,
- 10.Melia,
- 11.Populas Alba,
- 12.Terminalia Chehula,
- 13.Morus indica / laevigata,
- 14.Pongamia Pinnata,
- 15.Azadirachta indica,
- 16.Bauhinia malabarica,
- 17.Tectona Grandis

- **Invasive species:-**

Invasive species, also called invasive exotics or simply exotics, is a nomenclature term and categorization phrase used for flora and fauna, and for specific restoration-preservation processes in native habitats, with several definitions.

The first definition, the most used, applies to introduce species (also called "non-indigenous" or "non-native") that adversely affect the habitats and bioregions they invade economically, environmentally, and/or ecologically. Such invasive species may be either plants or animals and may disrupt by dominating a region, wilderness areas, particular habitats, or wild land from loss of natural controls (such as predators or herbivores). This includes non-native invasive plant species labeled as exotic pest plants and invasive exotics growing in native plant communities. Following are invasive species observed in Chhumb during the preliminary survey.

Parthenium

Chenopodium ambrosioides

Eichhornia crassipe

2.9.2 ANIMALS

Though there is no specific wildlife in the wetland area as such, it is frequented by Hog deer on some occasions. The range of wildlife in and around the protected area and detailed list of invertebrates, fishes are given in annexure.

2.9.3. BIRDS

The Community Reserve during winters host about 87 species of migratory birds and most of the birds arrive from faraway places for nesting and breeding in the wetlands. Most important birds are enlisted elsewhere in the plan and detailed list of migratory and resident (both aquatic and terrestrial) birds are listed **in annexure.**

MIGRATORY BIRDS AND BEHAVIOUR

Bird population: Total 87 species of aquatic and terrestrial birds have been recorded during the preliminary field survey of three days in the Chhumb region. Following table shows the detailed list of birds with their common names, residential status and feeding habits. We recorded 23% of the bird species as migratory, 43% birds are resident and 32% of bird species as resident migratory birds (Figure 1). This reveals that the Chhumb is an important habitat for both Migratory and resident bird species and can be developing as a good breeding ground for resident birds.

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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Table: Checklist of birds recorded at Keshopur Chhumb during the preliminary field survey.

S. No	Birds Identified	Status	Feeding Guild
1	Bar -Headed Goose	RM	Granivore
2	Ruddy Shelduck	M	Omnivorous
3	Gadwall	M	Aquatic Vegetable
4	Eurasian Wigeon	M	Aquatic Vegetable
5	Spot-Billed Duck	RM	Granivore
6	Common Teal	M	Granivore
7	Garganey	M	Aquatic Vegetable
8	Northern Pintail	M	Aquatic Vegetable
9	Northern Shoveler	M	Animal Matter
10	Common Pochard	M	Omnivorous
11	Tufted Pochard	M	Molluscs
12	White Eyed Pochard	RM	Omnivorous
13	Common Hoopoe	RM	Insectivore
14	White Throated Kingfisher	R	Pisivore
15	Pied Kingfisher	R	Pisivore
16	Greater Coucal	R	Insectivore
17	Rose Ringed Parakeet	R	Frugivore

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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18	Blue Rock Pigeon	R	Granivore
19	Red Collard Dove	R	Granivore
20	Common Moorhen	RM	Insectivore
21	Purple Swamp Hen	R	Insectivore
22	Common Coot	RM	Aquatic Vegetable
23	Common Sandpiper	R	Insectivore
24	Black Winged Stilt	R	Insectivore
25	Pheasant Tailed Jacana	R	Aquatic Insect
26	Northern Lapwing	RM	Insectivore
27	Red Wattled Lapwing	R	Insectivore
28	Pallas's Gull	M	Pisivore
29	Black Headed Gull	M	Pisivore
30	Brown Headed Gull	RM	Pisivore
31	River Turn	R	Pisivore
32	Osprey	RM	Pisivore
33	Bramhani Kite	R	Carnivore
34	Pariha Kite	R	Omnivorous
35	Steppe Eagle	R	Carnivore
36	Little Grebe	R	Aquatic Insect
37	Little Cormorant	RM	Aquatic Insect

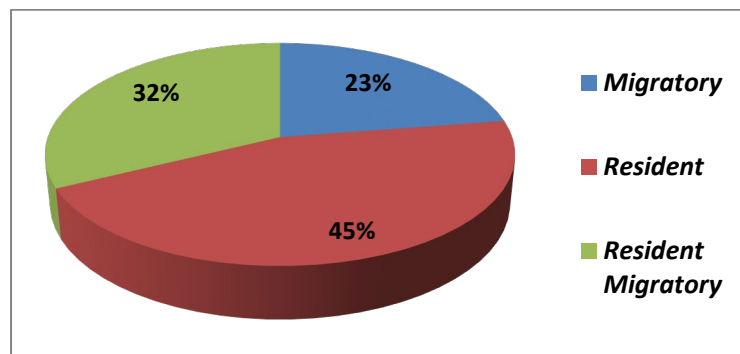
MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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38	Great Cormorant	RM	Pisivore
39	Cattle Egret	RM	Insectivore
40	Intemidiate Egret	RM	Insectivore
41	Great Egret	RM	Pisivore
42	Indian Pond Heron	R	Pisivore
43	Grey Heron	RM	Pisivore
44	Purple Heron	RM	Pisivore
45	Black Headed Ibis	R	Granivore
46	Glossy Ibis	RM	Molluscs
47	Asian Open Bill Stork	R	Carnivore
48	Rufous Tree Pie	R	Insectivore
49	House Crow	R	Omnivorous
50	Black Drongo	R	Insectivore
51	Common Starling	R	Omnivorous
52	Common Maina	R	Omnivorous
53	Pied Maina	R	Omnivorous
54	Barn Swallow	RM	Insectivore
55	White Wagtail	RM	Granivore
56	Yellow Wagtail	RM	Granivore
57	Bay Backed Shrike	R	Carnivore

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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58	Black Tailed Godwit	M	Molluscs
59	Common Green Shank	M	Insectivore
60	Tawny Eagle	R	Carnivore
61	Gray Lag Goose	M	Aquatic Vegetable
62	Red Vented Bulbul	R	Frugivore

Classification According To Residential Status of Birds



CHAPTER – 3

PRESENT MANAGEMENT AND PRACTICES

The Community Reserve is notified for the first time and the wetland area belong to Panchayats and does not fall in any category of legal classified forests and hence there is no system of past management. The roadside strips are planted by Forest Department and are in managerial control by the Forest Department.

3.1 HISTORY OF DEVELOPMENT

The Forest Department in its earlier attempts tried to declare it as Wildlife Sanctuary way back in 1998. But there were no concrete efforts by the erstwhile Wildlife wing on that front. Later a proposal on the initiative taken by Lt.Gen Kamaljit Singh (Retd) through the department in 2003 and later through His Excellency Hon. Governor of Punjab in 2005 also could not materialize due to the problems in approach. The Deputy Commissioner, Gurdaspur also tried his level best in the past but the villagers could not be convinced.

It was after the creation of a separate Wildlife Division in March 2006 that through a participatory approach and a series of meeting with local villagers, conservationist and other stakeholders the proposal was revived and this area was declared a CR officially notified in June 2007 as the first community reserve of the country.

3.2 ASSESSMENT OF THE PROJECT REQUIREMENT

After the assessment of the Keshopur Chhumb Community Reserve found the following points:

- **Existing unsustainable practices / land use in Community Reserve:-**

Currently 83% of the total area in the CR is under active human use in the form of fish ponds, cultivation of lotus and Trapa (singhara) through long term lease mechanisms. In fact these land uses are fast expanding both in terms of area and intensity. Those activities not only directly deplete the diversity of native species within the ecosystem and habitats, but also have prolonged impacts on the quality of water due to extensive use of organic chemicals in the form of pesticides and insecticides. Even though the active area of operation for these activities is 83%, the impacts practically get dispersed in the entire ecosystem.

- **Rapid land use changes outside the Community Reserve and adjoining landscape:-**

From the conservation point of view, the entire landscape is important. The demand for agriculture is ever increasing. The farmers are now trying to make use of all possible land for agriculture purpose which was previously left fallow and that provided excellent habitat for the birds. Traditionally the area has been used for one crop due to water logging. But now where ever possible, attempts are being made to use these lands throughout the year so as to have maximum benefit of cultivation. This presents a conflict with the long term biodiversity conservation initiatives in the area. Denudation of the native vegetation in the catchment is also leading to increased siltation within the wetland. Rapid urbanization is another

recent threat to the natural habitat. There is increased activity of construction in an around the Community Reserve.

- **Changing ecological regimes:-**

In the past there was a natural balance of the ecological regimes in the area. Due to increased human interference as well as excessive use of water for agriculture, these ecological regimes have been disturbed. A part of this wetland has already been drained out with a network of drains laid down by the Govt. of Punjab. Major drains in the area are Doga Nala, Alechak drain and Anandpur drain. These drains require regulation by barriers to maintain water level. The water levels in the CR are sharply fluctuating and this has adverse effects on the biodiversity.

- **Fast Spreading Invasive Species – Water Hyacinth (Eichhornia Crassipes), Chenopodium Ambrosioides and Parthenium Hysteroohorus:-**

Aline invasive species (AIS) are one of the major threats to the ecological and economic well being of the ecosystem (McNeely et al. 2001) AIS are highly adaptable and usually widespread and can live in a wide range of environments. The primary concern over the role of invasive species in Keshopur - Chhumb ecosystem is to understand the process of disturbance and competition which requires formulation of evidence of the affects that these processes have in the area. But this assessment is difficult due to the lack of historical data. The wetland ecology of the Keshopur has continually changed as a result of intensified land use and modifications due to human pressure in the past. As a result of major terrestrial invasive species i.e., chenopodium ambrosioides land parthenium hysteroohorus

land aquatic invasive species i.e., Eichhornia crassipes (Mart.) Solms have appeared in patches in the wetland.

Water hyacinth Eichhornia crassipes which is the major invasive species in Keshopur-chhumb CR prevent sunlight and oxygen from reaching the water column and submerged plants. This in turn dramatically reduces biological diversity in aquatic ecosystems. It also affects the ongoing fishery activities of wetland and fish farmers spent a lot of effort to remove this species but have failed due to lack of coordination in the eradication.

Chenopodium ambrosioides and parthenium hysterophorus are found on the bunds and around the banks of wetland. Over growth of these species on the bund discourage the other native species to grow over these areas and is also a nuisance to the fish farmers.

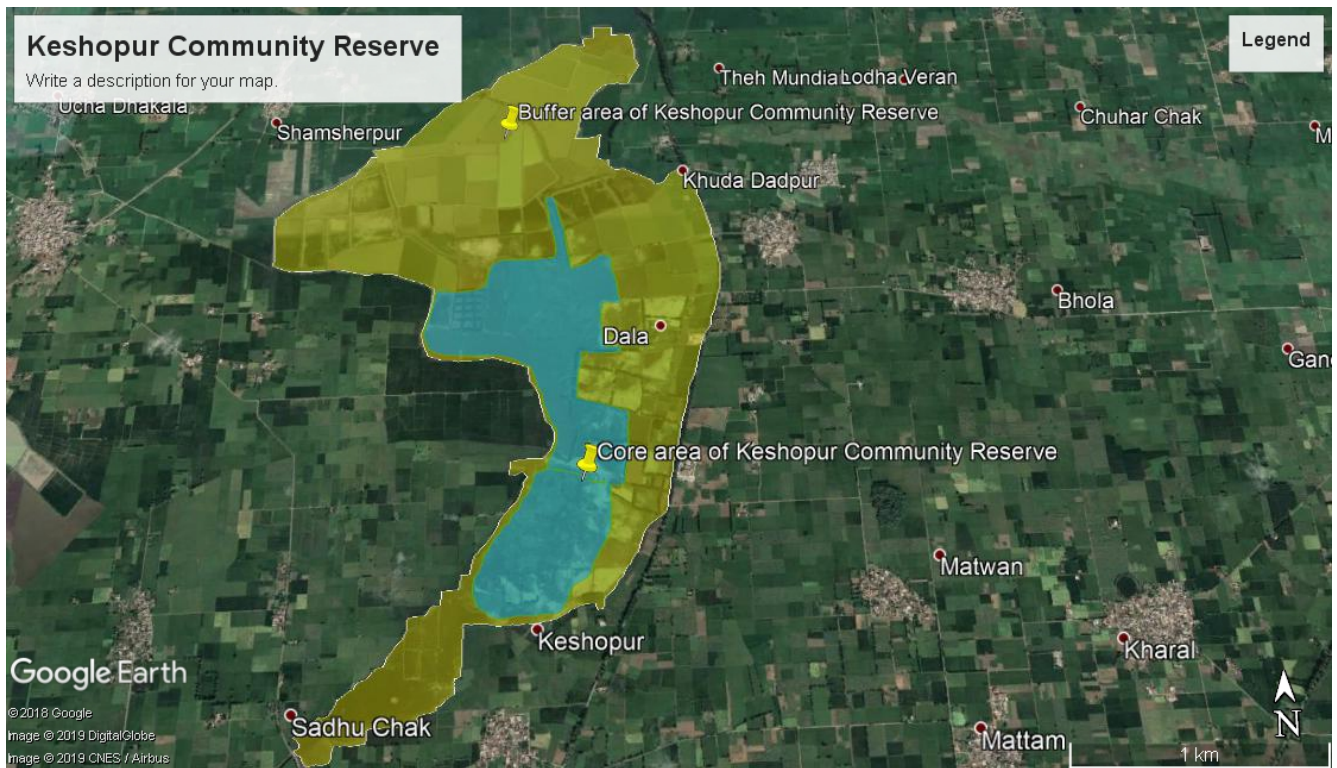
- **Increase Demand for Land and More Incomes:-**

Due to lack of major development programs, the opportunities of alternate employment are few. There is problem of unemployment and the only source of income in the form of agriculture. The panchayats and residents of the villages located in vicinity of this wetland have always been of the view that the area should be reclaimed for cultivation by draining excess water. Therefore the demand for land is ever increasing. This is leading to more and more encroachments in the CR.

- **Lack of Boundary Demarcation:-**

Though the area has been declared as a CR, the final demarcation of boundaries on the ground has not been initiated. This provides enough opportunity for encroachment in the CR. Area has been divided in two zones namely Core zone and Buffer Zone. Tourists will be allowed to roam in Buffer zone only. Core zone is totally conserved for growth of Birds and aquatic life. A map is shown as follow:-

Map with Core and Buffer Zone



Water Management in CR.

- ***Enhancing water holding capacity***

Water hyacinth, lotus plantation currently occupying 20% of total area of Keshopur community reserve need be removed for enhancement of water holding capacity. The removal of water hyacinth, lotus plantation would help enhancement of water level by at least one meter which is critical to restoration of biodiversity. Selective dredging in critical areas and channels dropping into the lake would further create space for biodiversity enhancement. Improvising hydrological connectivity with existing marshes would further help water absorption capacity of the wetland system to control flooding.

- ***Environmental flow assessment at basin level***

For long term management it is critical to consider conservation and sustainable development of Keshopur community reserve within Beas basin which essentially is linked with hydrological regimes. Scenario based approach on assessment of water demand for human purposes such as agriculture, drinking water, hydropower generation etc. as well as ecological purposes including fisheries, water bird, floodplain conservation be developed.

- **Catchment Conservation**

- ***Erosion control***

Treatment of degraded forests in watersheds of direct catchment area through afforestation in fallow land, aided regeneration and small-scale engineering measures to augment the soil conservation measures by construction of check dams, vegetative spurs and gully plugging.

- **Management of Habitat of birds/other species.**

- **Ecotourism Development**

Development of recreational facilities such as boardwalk, nature trails, guided tours, angling spots, landscape gardens in the Keshopur community reserve would be an effective tool for diversification of livelihood opportunities for local communities and generating awareness about importance of wetland within River Beas basin. Educational and visitor interpretation services to be established at the critical locations particularly along the bund. Specific training programmes for various target groups would be part of ecotourism activities. Signages, communication and transport facility and visit to catchments would be part of ecotourism development.

- ***Livelihood improvement***

Sustainable fisheries development through enhancement of fish yield and diversity would be critical to livelihood improvement of the communities. Establishment of fish seed farm to revive fast dwindling native fish species. Strengthening landing centers for monitoring the yield, provision of improved crafts and gears, enhancing live fish storage capacity and post-harvest management would ensure sustainable fisheries development.

Establishment and strengthening of fish cooperative societies proposed to reduce exploitation by the middleman and increase incomes of the local communities who depend upon these resources for their livelihoods.

➤ **Friends of Keshopur community reserve**

Enhancing community-based watch and ward mechanism: Community-based watch and ward mechanism needs to be established in collaboration with District Wetlands Management Committee through deputing additional Community Wildlife Watchers. The financial resources can be generated through various eco-tourism ventures in the area. This will not only promote community-based conservation in the area but will also develop a sense of ownership of the resources. This mechanism is especially needed during winter season, as far as the migratory birds are concerned.

- **Inadequate Protection:-**

The staff currently employed for the protection is not sufficient with respect to the size and spread of the Chhumb. Neither are there any basic facilities for protection. Capacity building and appropriate training is required.

- **Lack of Long Term Policy And Planning:-**

As far as areas outside the CR are concerned, these are under various types of unplanned developments and changes. Cropping patterns are fast changing and this may have long term implications to the ecology of the area. Similarly due to urbanization, lots of constructions are taking place. Urban development guidelines and master planning for the adjoining areas is urgently required. Above all there is no long term policy and overall planning for the sustainable development and ecological health of this landscape.

- **Lack of Stakeholder Coordination:-**

There are large numbers of stakeholders with conflicting interest. They have their own strengths and weakness as threats and opportunities. But, there is hardly any system of dialogue or coordination among these stakeholders.

- **Anti Wetland Concept Prevailing In the Area:-**

Lack of awareness about the importance of conserving the KCCR is quite evident. Most of them has the feeling that wetlands do not provide them any useful products / benefits and harbor diseases and miscreants. This requires continuous environmental education programmes, motivation workshops and exposure visits for local communities. No doubt in past few years some positive works has been done in this direction but more efforts are needed in the coming years.

- **Ecological Impacts Due To Loss of Wetlands:-**

Gurdaspur District is endowed with many popular natural wetlands, but over the years most of these wetlands either have been drained or degraded. Reclamation of wetlands for agriculture has caused tremendous loss to the biodiversity and wetland ecology. Major losses are as under:

1. Serious fall in the groundwater table that would adversely affect status of agriculture besides causing unknown environmental consequences.
2. Loss of habitats for the resident and migratory water flow.

3. Decrease in biological diversity particularly endemic and endangered species and decrease in resident and migratory bird population, fish and other faunal diversity.

4. Adverse impact on sustainable fisheries and fish biodiversity.

PART-II

KESHOPUR CHHUMB COMMUNITY RESERVE



THE PROPOSED MANAGEMENT

CHAPTER – 4
MANAGEMENT PLAN OBJECTIVES AND
STRATEGIES

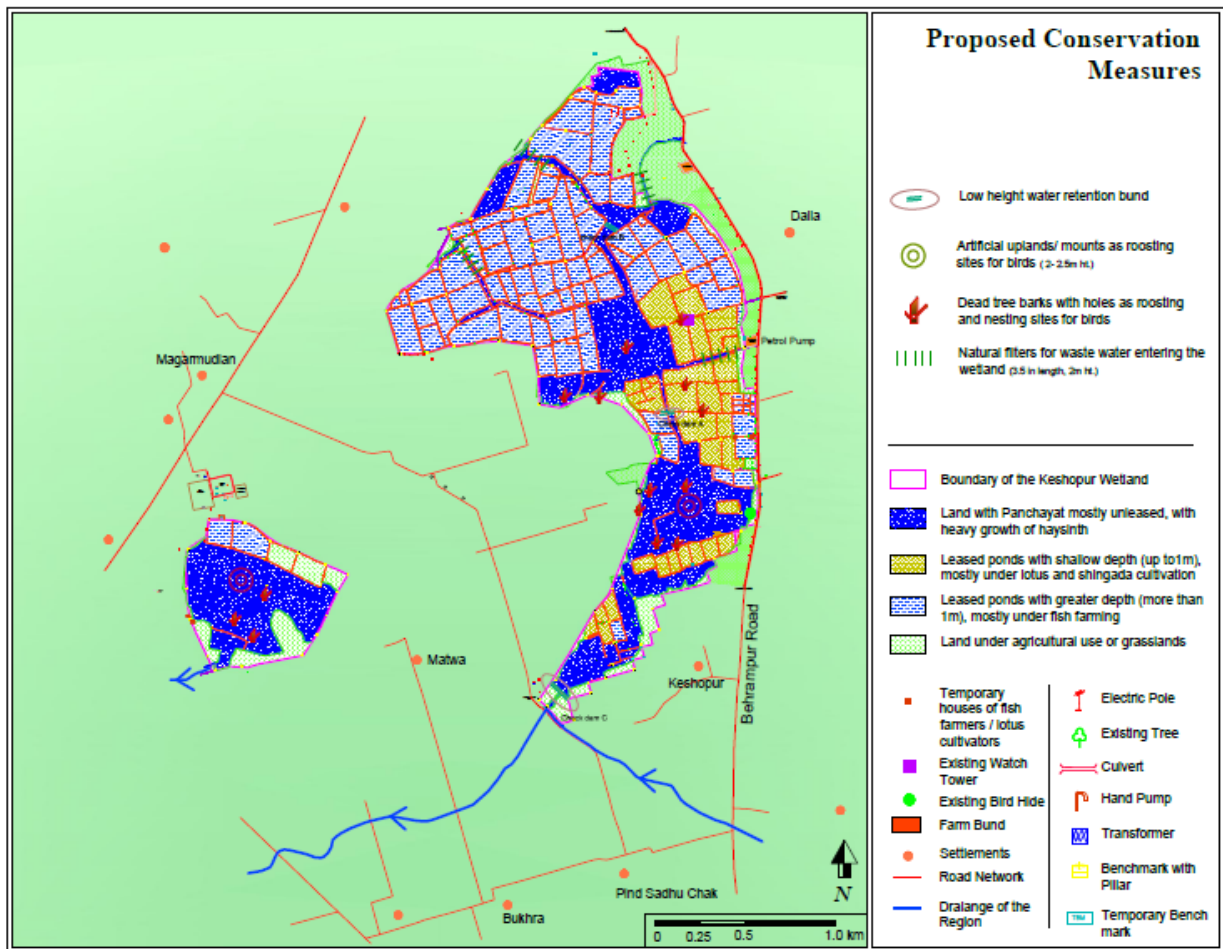
4.1 OBJECTIVES OF MANAGEMENT

The objectives of management are as follows:

1. To conserve and improve the fragile and highly threatened wetland ecosystem of the community reserve for its role as biodiversity and migratory corridor for endangered birds and other waterfowl species.
2. To maintain the integrity of the ecosystem and arrest further degradation of the wetland ecosystem by providing adequate protection, strengthening existing infrastructure etc.
3. To create eco-friendly environment in and around the wetlands by various other alternate livelihood options and eco-development through active participation of people and stakeholder engagement to make them partners in development.
4. To promote the ecotourism and create conservation awareness in and around the community reserve area.
5. To facilitate the Research, training and capacity building of communities and staff and strengthening social engineering skills.

4.2 MANAGEMENT STRATEGIES

4.2.1 CONSERVATION MEASURES



- **Removal of Eichhornia:-**

It is observed that most of the unleased panchayat land within the wetland is heavily infested with Eichhornia. This Eichhornia invasion is detrimental for the ecosystem of wetland hence immediate removal of the same is required.

Removal of Eichhornia and other Hyacinths should be done manually by engaging labours on daily wage basis. As Eichhornia is dry currently, it is easy to remove after mid March as Migratory birds would start return migration after mid March. Manual removal of such weeds is best practice in this case as it does not affect the wetland ecosystem adversely.

- **Edge Plantation:-**

It is observed that boundaries of wetland are marked by white poles put up by Forest Department.

This edge can be secured and demarcated by vegetative edge creation. Native trees along with shrubs and hedges can be planted on the southern and western boundary where there is unleased Panchayat Land with no fish ponds. Wetland boundary along the road and fishponds can be planted with native hedges.

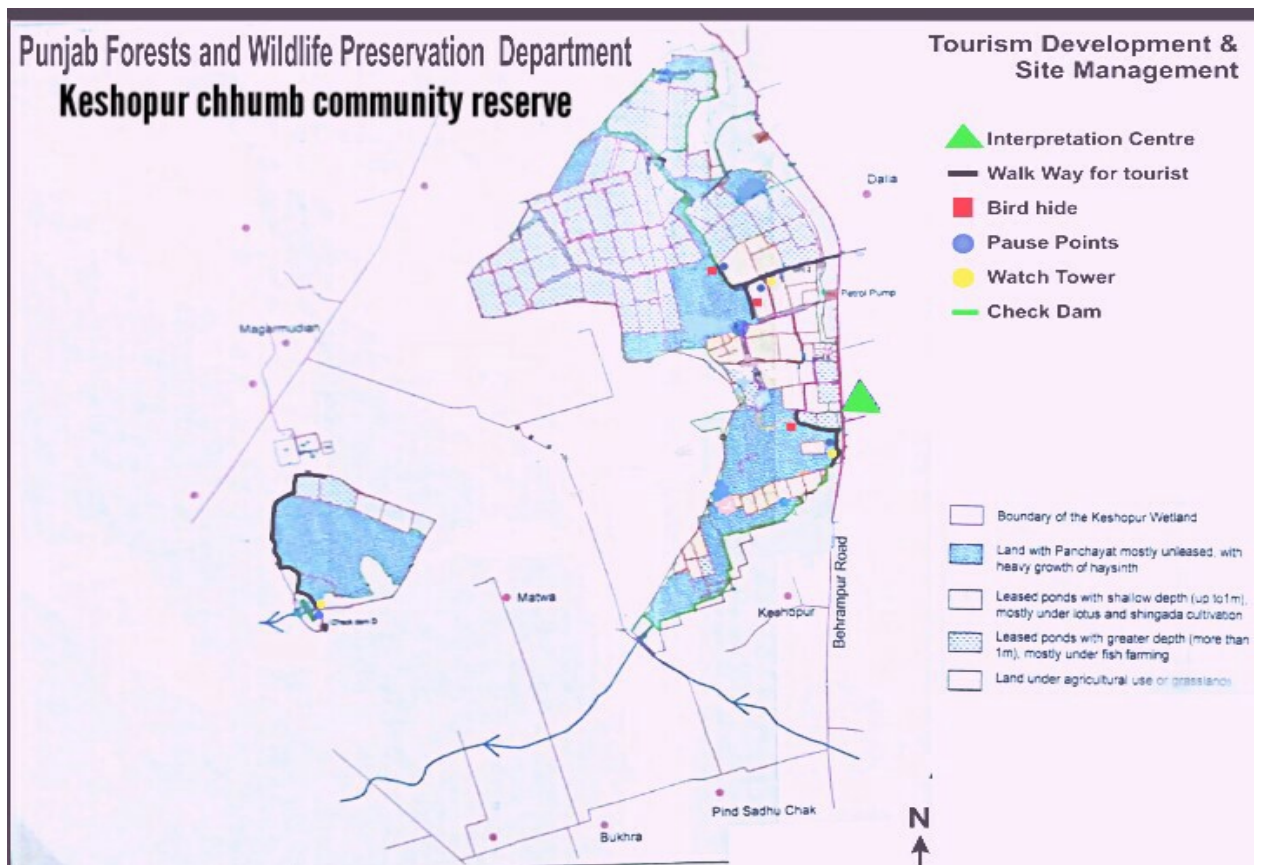
- **Check dams and Bunds:-**

Water entering into the swamp used to spread over much wider area in past. Due to the Fish pond, lotus pond activity water is being channelized at many places. This channelization of storm water leads to the more soil erosion as well as less ground water percolation. Creating low height bunds at intermediate levels could effectively check the soil erosion and will also help improving the ground water level. It will also help in maintaining the water level in the swamp during low rainfall years.

- **Creation of Uplands:-**

Once the Hyacinth is removed during this dry season, uplands/ islands/ mounts can be created at certain points using the soils from the same areas for the roosting and resting of Birds..

4.2.2 ECO-TOURISM DEVELOPMENT FOR WETLAND



- **Interpretation Centre:-**

Development of Interpretation centre on identified site: Interpretation centre can be instrumental in displaying various exhibits related to wetland. It can play a role in

creating awareness amongst local villagers regarding wetland ecology and its significance. Training and Capacity building program can be undertaken. Training for prospective guides from the local community needs to be initiated at the earliest, so that while the interpretation center starts few local guides are well trained and available.

- **Nature trails and Boardwalks:-**

Infrastructure to access and observe wetland is needed to expedite further research as well as revenue generation in terms of tourism development. However these have to be carefully planned so as to ensure sustenance of wetland habitat.

- **Bird Hides and Watch Towers:-**

Bird hides and watchtowers at strategic positions will ensure vigilance and tourism development.

- **Signages- Informative, Directional And Instructive:-**

All the signage's whether small or large ones are proposed to be made of eco friendly material and to merge with the environment. These signages are proposed to be located at every pause point, at watch towers and near and inside the Bird hides. The entry point will also have both the signage- informative and directional.

The structure of the signage is simple which is proposed to be built using the same eco friendly board material. At the same time there will be a watermark used for each of the signage content for the KCCR.

4.2.3 STRATEGIES FOR SOCIAL MANAGEMENT

For developing Ecotourism management Strategies and solving KCCR issues we have to promote activities which creates awareness among villagers, educate them and it increases the level of community participation

A layered approach for KCCR:

- **Conservation of Ecological Buffer;-**

The purpose of ecological buffer zones is to reduce the impacts of development on the natural environment by providing a space between human impacts and nature. In this approach we can share what is Ecology and what is the need to develop the ecological buffer zone in KCCR area, how we can promote ecology of chhumb area and how it will help us in developing ecotourism.

- **Social Connectivity:-**

The management plan to protect and enhance the environmental, social and economic assets of the marshy land related to communities for the benefit of present and future generations, must be promoted and implemented at the grassroots level. A partnership ensuring a legacy of diverse ecosystems, plantation, economic and social well being in the marshy area surrounding communities through innovative planning. Local community participation through Income Generation Activities (IGA's) and PRA to generate their interests in community reserve and to protect wetland area for resident and non residents birds of chhumb.

- **Nature Education:-**

Environmental education refers to organized efforts to teach about how natural environments function and, particularly, how human beings can manage their behaviour and ecosystem in order to live sustainably. The term is often used to imply education within the school system, from primary to post-secondary. However, it is sometimes used more broadly to include all efforts to educate the public and other audiences, including print materials, websites, media campaigns, etc. Related disciplines include outdoor education and experiential education.

Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action.

- **Facilitating Revenue Generation:-**

To generate income in rural areas tourism dept. could lead to poverty reduction and growth in rural areas. In this project tourism dept. can generate income revenue activities. This project revenue facilities can be generated for the KCCR villagers like Bread & Breakfast, Crafts centre, camping sites, etc. it is a good source of income for them who migrates from the area and now they can earn money from their periphery.

Activities planned for community participation in the KCCR

S.No	Activities	Details
1	Identification of villages through PRA,RRA and detailed survey using social staff	Maximum impact of villages 5 km radius from its boundary. Consequently, all villages falling in 5 km radius should be taken up for eco development.(Within 5 selected villages falling under Keshopur Chhumb Community Reserve)
2	Forming Eco-development committees (EDC) by engaging village level motivators and facilitators	Identified villages will be subjected to PRA and other social development related tools for rapport building, introducing the eco development concept, forming EDC, identifying and implementing entry point activities.
3	Preparation of micro plans (for 5 selected villages)	For all identified and selected villages
4	Formation of self help groups & corpus fund	5 each in reserve villages
5	Cattle vaccination	Domestic cattle in 5 selected villages of the CR
6	Introduction of agro- forestry species in farmlands	Free distribution of seedlings of fuel/fodder/fruit trees in reserve villages
7	Promotion of organic farming and IPM, Vermi composting	For reducing harmful fertilizers, insecticides etc that pollute the wetlands

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

8	Promotion of IGAs	Vermi composting , Firewood Brackets, Tailoring, Embroidery, Weaving, Poultry Etc.
9	Development of educational material	Customized content for different target groups of stakeholders
10	Lectures/ workshops/ slide shows	Cover all schools and Colleges within KCCR area.
11	Celebration of special days & exposure visits to the reserve within 5 KCCR villages	World environment day, earth day, international biodiversity day, wetland day, wildlife week etc.
12	Film making	Special films to be outsourced on migratory birds, wetland habitats and their importance etc.
13	Nature education camps and outreach for students	Hiring vehicles and arranging competitions etc.
14	Competitions within the Schools	Nearby area of 5 selected villages of the KCCR twicly in 3 yrs
15	2 days orientations on KCCR wetland (within 5 villages)	Detailed orientations of KCCR management committee on wetland
16	Seminars/ Workshops and Awareness camps etc.	For the community

4.3 OBJECTIVE OF THE ACTIVITIES IN THE KCCR

- **One day orientations:-**

Objective of the activity

- Creating awareness within the school and colleges of the nearby chhumb area.
- To educate Children, Youth and local community about the wetland and importance of the KCCR area.

Duration of the activity:

One day orientation activity will be organized three times in the 5 year duration of the Project. Firstly, in the initial Phase /year of the Project and second in the third year and last orientation in the fifth year of the implementation of the Project with the KCCR Management Committee members, Key personalities of the village and Schools & colleges in the nearby area.

- **Workshops / slide shows:-**

Participants: schools & colleges in the nearby area

Objectives of the activity

- To create awareness and interest among the KCCR management committee about the wetland area with the help of Visual Aids.
- To create awareness and to educate the Local community, Children and Youth nearby the KCCR wetland area with interesting audio and visual aids.

Duration of the activity:

Workshops /slide shows activity will be organized once in every year during the implementation of the KCCR Project with the different groups of the wetland area like KCCR Management Committee members, Key personalities of the village, women's group, youth group and schools & colleges in the nearby area.

• **FGD's (Focused Group Discussions):-**

Participants: within the 5 selected villages of KCCR.

Objectives of the activity

- To do the situational analysis of the villages comes in the KCCR wetland.
- To know the basic need assessment of the village to promote/develop KCCR area.
- To create awareness and to educate the Local community, Children and Youth nearby the KCCR wetland after doing the situational analysis.
- Final outcome of the FGD will be to know who will be selected for the job of Guides, Security Guards, Bread and Breakfast.

Duration of the activity:

Focused group discussions will be done twice within the 5 year duration of the implementation of the KCCR Project. First FGD will be done in the initial phase and second in the third year of the Project.

- **Celebration of special days (Earth Day, World Environment Day, Wildlife Week, Plantation week):-**

Participants: Within 5 villages and Schools & Colleges in the nearby KCCR wetland area

Objectives of the activity

- To educate Local community on the Eco development.
- To create awareness on the environmental issues as well as importance of the wildlife.
- To increase the participation of the community and different age groups within the KCCR wetland.

Duration of the activity:

Celebration of special Days is an important activity to educate on environmental issue and increase local community participation. For achieving the objective we will organize this activity every year on the special days during the implementation phase of the project.

- **Competitions in Schools & colleges of the KCCR wetland area (10 Kms radius):-**

Participants: Within KCCR villages Schools & Colleges

Objectives of the activity

- To create awareness among teenagers on the environmental issues as well as importance of the wildlife.

- To make them sensitive about the KCCR area like birds, Flora and Fauna.
- To educate Children and Youth about the Eco development.
- To increase the participation of Children and Youth within the KCCR wetland.

Duration of the activity:

Competitions in Schools and Colleges within the radius of 10 Kms area nearby KCCR wetland are an important activity to educate Children and Youth on the environmental issue and increase their interests on the Wetland. For achieving the objective we will organize this activity once in every year within 5 senior secondary schools and 2 colleges.

- **Meetings/ consultations:-**

Participants: Management Committee members and villagers of 5 villages KCCR

Objectives of the activity

- To discuss the ongoing process within the KCCR.
- To know the level of community participation during the implementation phase of the project.
- To create awareness of the activities should be done in the KCCR wetland.
- To get feedback of the project from the villagers.

Duration of the activity:

Meetings/ consultations should be done on monthly basis every year within the 5 selected villages (Miani, Dalla, Magarmuddian, Keshopur, Matwa). It is an important activity to know the views of the community and KCCR management committee on the ongoing process for Eco development in the KCCR area.

- **Two days orientations on KCCR wetland:-**

Participants: Management Committee members

Objective of the activity

- To create awareness among the KCCR management committee about the wetland area.
- To create awareness among the Local community within the wetland area
- Creating awareness within the school and colleges of the nearby chhumb area.
- To educate Youth and local community about the wetland and importance of the KCCR area.
- To create awareness in community about the resident and migratory bird species.

Duration of the activity:

Two days orientations will be organised twice in the 5 year duration of the Project. Firstly, in the initial Phase /year of the Project and second in the third year implementation of the Project with the KCCR Management Committee members, Key personalities of the village, Women's Group and Youth groups in the 5 selected villages of the wetland area.

- **Exposure visit to the Keoladeo bird sanctuary, Bharatpur (Rajasthan):-**

Participants: Management Committee members, key personalities of the village, representatives of FEW organization and Concerned Govt Officials.

Objective of the activity

- To create awareness on the Community Reserve
- To create awareness on the community participation within the wetland area.
- To educate on the role of community to develop Eco tourism within the KCCR wetland area.
- To educate management committee members and community about the wetland and importance of the KCCR area.

Duration of the activity:

Exposure visit of the Keoladeo Bird Sanctuary, Bharatpur Rajasthan in the initial phase/year during the implementation of the Project with the KCCR Management Committee members, Key personalities of the village of the 5 selected villages of the wetland area.

- **PRA (Participatory Rural Appraisal):-**

Participants: within the 5 selected villages.

Objectives of the activity

- To create awareness among the Local community about the wetland area.
- To increase the Community Participation within the wetland area.
- To know the Situational analysis of the 5 selected villages.
- To select Security Guards, Guides and Bread and Breakfast activity persons/families with the participation of the community.
- To get feedback from the villagers of KCCR.

Duration of the activity:

Participatory Rural Appraisal activity in the initial Phase /year of the implementation of the Project within the 5 selected villages of the wetland area.

Capacity building trainings of Guides, Security Guards, Crafts and Bread and Breakfast:-

Participants: Local Persons selected by the community during the PRA and FGD's.

Objectives of the activity

- To generate income generation activities within the KCCR wetland.
- To increase the Community Participation within the wetland area.
- To promote Eco development and Eco tourism in the KCCR wetland.
- To give an opportunity to BPL families through Income generation activities.

Duration of the activity:

Capacity Building Trainings for the Guides, Security Guards, Crafts, and Bread and Breakfast providing Families/Persons should be organized twice in the implementing phase of the Project. Firstly in the initial Phase /year, and secondly, Refresher training after Two years of the main trainings.

CHAPTER- 5

DETAIL AND DESIGN OF STRUCTURAL AND OTHER COMPONENTS

5.1 INTRODUCTION

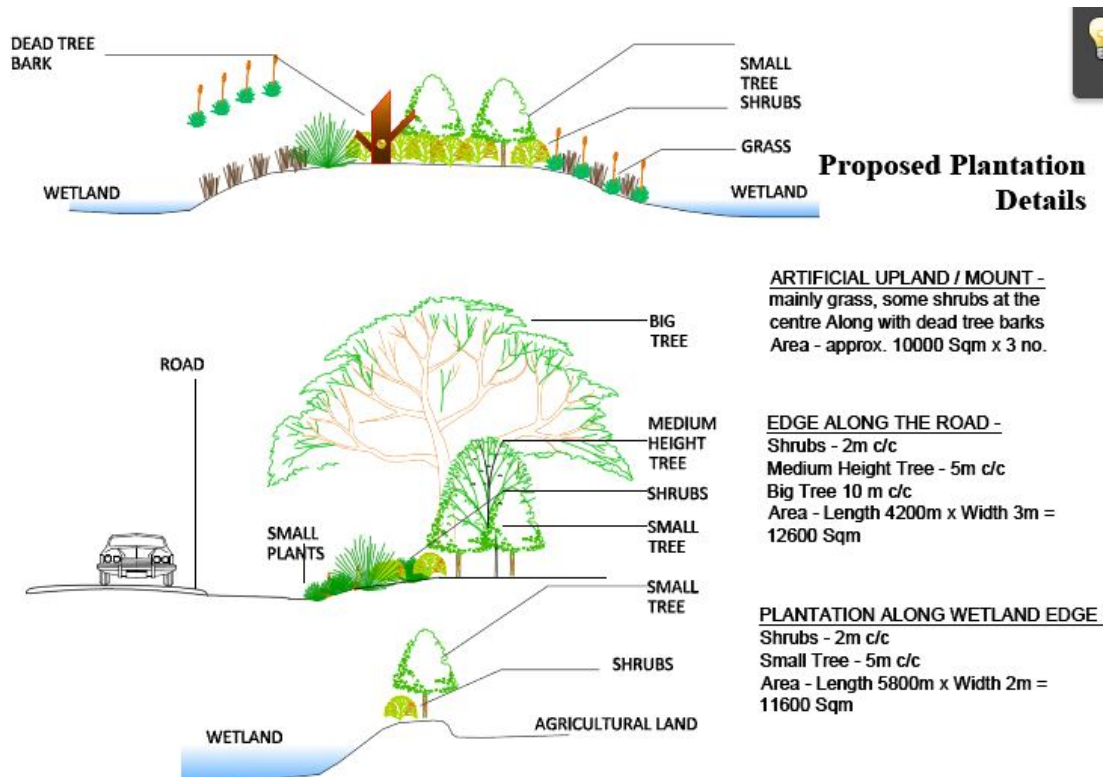
The structures proposed within the wetland are intended to both support the wetland eco-system as well as aid the visitor experience while causing minimal disturbance to nature and ecology.

5.1.1 Design Objectives:-

- To design structures this in their function, building construction technology, and materials should cause minimal disturbance to the wetland eco-system, its resources and the birds.
- To aid the visitor's movement and experience of the wetland and bird-watching.
- To build structures and incorporate such design elements/ features that supports the wetland eco-system and increase the number of birds and their species.
- To use design and materials which harmonize with the environment, and are sustainable and eco-friendly.

5.2 DESIGN OF ELEMENTS

5.2.1 Plantation:-



Plantation has been done on following areas: on the artificial upland; on the edge along the road; on the edge along the road adjoining farmland; along the wetland edge; along the edge of plot and other farmland; and between farmland and fish pond/lotus pond.

Advantages of Planting:-

- Green barrier adds friendlier definition. Concrete or MS fencing, are proven inferior to nature as they hamper natural floral-faunal growth. Hence green vegetative barriers are considered appropriate.
- Green plays a significant role. Large trees, small trees, shrubs, climbers and herbs together enhance biodiversity and ecosystem of any place.
- Lower most-tier plantation: helps in erosion control acts as a filter to insecticides and pesticides from farmlands.
- Tier of small trees and shrubs: Attract a lot of garden fauna such as insect's bees, butterflies, smaller birds and wasps etc. which in turn help in the environmental cycle.
- Trees intercept particulate matter and absorb gaseous pollutants as ozone, sulphur dioxide and nitrogen dioxide, thus removing them from the atmosphere. Trees also emit various volatile organic compounds that can contribute to ozone formation.
- Multi species plantation is required.

5.2.2 Pathways:-

The pathways are designed to facilitate movement and experience of the visitors in the wetland. Three types of pathways are designed- pathway along the intermediate bund, along the existing bund and the rough pathway covered with gravel. There also are Covered pathways which are proposed to have a bamboo frame.

Some pathways are made with PCC and other paving materials and some are made with decking board and recycled wooden plastic composite or wooden planks. The width of the pathways varies from 1.2 m to 2.5 m depending upon their type.

5.2.3 Bird Hide:-

Bird hide have been proposed to view the migratory birds in the wetland. Bird hides with different sizes which accommodate minimum 20 to 25 persons at a time are proposed in the wetland. These are simple structures with top hung windows at the eye-level for easy viewing. Also, it will have benches, desks and high density binoculars to view the birds in the wetland.

5.2.4 Watch towers:-

Watch towers are located at strategic location to allow for vigilance and security and also for tourist to get high view point of wet land. These are simple three-storied structures with provision of a guard's cabin, storage and viewing decks, to be accessed through a staircase. The structure has a sloping roof of green corrugated roofing sheet supported on tubular steel truss.

5.2.5 Pause points and signage:-

Pause points and bridges along with pathways are designed for better connectivity and as resting points within the wetland.

The pause points are intended to be interesting covered outdoor space with a combined arrangement of seating, signage, plantation, decking, graveled areas, pathways, and railings so as to provide rest and information to the visitors. Three

types of pause points are proposed- square type, linear type and the linear deck type.

The different signage like directional and descriptive will be used at appropriate location. The signage shall be supported on hollow chromium plated square steel sections with Steel plates bolted horizontally on them at 300mm c/c.

5.2.6 Toilet block:-

For visitors, a toilet block is proposed in the north direction of the wetland. It is a simple structure measuring nearly 5.1 x3.2 m. It has separate facilities for males and females and adequate ventilation. The structure is built in brick and clad in wood plastic composite.

5.2.7 Filtration Bund and Artificial Upland:-

The filtration bunds, 1.2 m high, having natural filters are proposed. These have a core of sand and rammed earth filler bags, and are further rammed with earth filling to achieve the right profile. These shall be covered with katha sheets/coir mats and weeds on the top shall act as natural filters.

The artificial uplands for roosting shall rise to a minimum 1m above the water level and shall be made in sand/rammed earth.

Eco-sensitivity of the site has to be considered during implementation.

5.2.8 Check Dams:-

Check-dams have been designed to avoid soil erosion and for retention of water. The top level of Check-dams is 252 m. The check-dams shall be made of

compacted soil with brickwork finished with gravels on them. These check-dams shall have brick foundations in order to lower the construction impacts. These are also provided with sluice gates. The heights and the lengths of the check-dam vary with respect to their location.

5.2.9 Interpretation Centre:-

An Interpretation Centre has been constructed at Matwa village revenue land adjoining Keshopur Community Reserve in Gurdaspur. The land is 3 acres. It incorporates a ticketing booth, a souvenir shop, public facilities and a cafeteria and interpretation hall along with outdoor spaces. However, there is a thought to build this structure in mud to incorporate an Eco friendly design and architectural use of available resources without disturbing nature. The design of proposed structure is according to following factors which are given below:

- Eco structure
- Climatically suitable
- Preferably in mud architecture
- Or suitable to Punjab architecture
- Unique as well as grounded to the surroundings context
- To be built with the available local material and craftsmen
- Cost efficient/low cost

5.2.10. SNAKE MANAGEMENT

Snakes are remarkable animals, successful on land, in the sea, in forest, in grassland, in lakes and in deserts In this wetland presence of under mentioned type of snakes are noticed:-

1. Indian Cobra
2. Russell Viper
3. Rate snake

The snakes mentioned at Srl No 1 and 2 are most venomous snakes of the world and snake mentioned at Srl No 03 is non venomous. These snakes may be encounter to the tourists. For the safe custody of the tourists “Snake Catching Kits” will be Purchased and, made available at Interpretation Centre to avoid any risk to tourists.

CHAPTER – 6

DETAILS OF WORK DONE IN 2013-2017 UNDER IDIPT

Infrastructure Development Investment Program for Tourism (IDIPT) has started various projects in different states of India like Himachal Pradesh, Punjab, Tamil Nadu and Uttarakhand because they are better tourism sites. ADB loan 2676/ India include Himachal Pradesh and Punjab projects. Keshopur Chummb Community Reserve (KCCR) depicts very interesting tourism site. This Chummb lies on Doab side of Ravi and Beas. This Chummb covers total area of 850 acres.

KCCR has covered five villages which include Miani, Dala, Keshopur, Matwa and Magarmudian. This reserve has declared Community Reserve by Punjab Government under 36C Wetland Protection Act, 1972 under notification No. 34/13/2007/Ft-V/6133 dated 25/06/2007.

Tourism Department and Punjab Forest and Wildlife Conservation Department works for the development of KCCR in order to provide all kind of facilities to the tourist visiting Chhumb.

The IDIPT has started project to develop this wetland into tourists' site so that tourist from all over the world has come to visit this place and know its importance.

6.1 OBJECTIVES

- Conservation of ecological Sensitivity of the site.
- Social Connectivity- Natural and Cultural heritage.
- Nature Education for the tourists, researchers and nature lovers.
- Facilitating Revenue Generation locally as well as regionally.

6.2 AGENCIES INVOLVED

This community reserve includes:-

- Punjab Forest and Wildlife Conservation Department.
- Punjab Heritage and Tourism Promotion Board.
- Local Administration.
- Rural Development Department.

6.3 WORKS DONE IN CHHUMB

- Plantation and habitat improvement
- Removal of weeds
- Soil Conservation measures
- Eco development activities and Income Generating activities

6.4 PLANTATION AND HABITAT IMPROVEENT

6.4.1 PLANTATION OF TALL PLANTS IN CHHUMB

Tall plants of different species like Arjan, Jamun, Willow, kikar, bamboo, rubal, satpati, mango, pilkan, sehtoot, euclaptus etc were planted in order to provide nesting for the birds. Trees lower most-tier plantation: helps in erosion control acts as a filter to insecticides and pesticides from farmlands.

6.4.2 HABITAT IMPROVEMENT

In habitat improvement, live hedge is planted along the sides of the wetland which provides the resting site for the birds

6.4.3 REMOVAL OF WEEDS

Most of the area in Chhumb is covered with weeds and water hyacinth. There is only small area where the water surface is uncovered, which includes fish ponds. The removal of water hyacinth leads to more water surface of Chhumb uncovered so that more and more birds come to see more availability of water.

6.4.4 DESILTATION OF WETLAND

The dead and decayed weed in Chhumb gets deposited at the bottom and forms silt. Silt decreases the water level in Chhumb. De-siltation leads to removal of silt so as to increase the depth of the Chhumb

6.5 SOIL CONSERVATION MEASURES

6.5.1 ARTIFICIAL UPLAND

There was artificial upland made in the Chhumb at Magarmudian. The upland was placed in the Chhumb surrounded by water so that birds rest there and develop their nests and lay eggs and any animal may not destroy them.

6.5.2 EARTHEN NATURE TRAIL

The earthen path has been made in the Chhumb of length near about 2 kms in order to make the tourists approach inside the Chhumb so that they can easily enjoy bird watch.

6.6 ECO-DEVELOPMENT AND INCOME GENERATING ACTIVITIES

6.6.1 FORMATION OF SELF HELP GROUPS

The general house meetings have been done in each village of KCCR in order to aware the people the meaning of self help group (SHG) and the interested people from each village have made their SHG in each village. Now there were nearly three SHGs.

6.6.2 PROMORION OF IGA's INCLUDING TRAININGS

The trainings under IGA's which were given to the members of Self Help Groups are listed below:-

1) Fabric Painting Training:-

The Fabric Painting Training was given at village Keshopur to the members of K.P SHG (Keshopur) and Pragti SHG (Miani). There were total 15 participants in the training. The training was held on 10/02/14 to 15/02/14.

2) Training on Handicraft From Water Hyacinth:-

The training of handicraft from water hyacinth was given from NEDFI R&D centre, Khetri (Assam). There were total 10 SHGs members from villages under KCCR. The training was held from 05/03/2015 to 21/03/2015.

Detail of work Done During the year 2013-2017 on Development of Community - Based Eco Tourism Facilities at Keshopur Wetland by PIC (Forest), Funding by PHTPB (IDIPT) Chandigarh

Srl NO	Particular of Activities	Unit	Qty	Amount expended (In lakh)
1	Plantation of Suitable tall Plant & Sylvicultural operations	No	3000	10.00
2	Habitat Improvement	Metre	9934	7.50
3	Water fowl Census	No	4	1.43

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4	Removal of Weeds	Ha	50	38.14
5	De-siltation of wetland	Cum	25212	31.39
6	Artificial Upland	No	3	8.74
7	Construction of Nature Trails	Cum	9166	27.44
8	Bird Hide	No	4	5.00
9	Pause Points	No	3	1.89
10	Signage's	No	21	3.52
11	Entry Points Activities (04 Bus Stop shelter, 04 Shamshangatte, one drain/one Packa Path	Village	5	10.00
12	Base line and impact assessment of villages	No	5	1.54
13	Promotion of IGA's	No	10	15.82
14	Formation of SHG's	No	15	2.10
15	Awareness of Organic camps	No	25	1.00
	Total			165.51

CHAPTER – 7

WATERFOWL CENSUS, RESEARCH AND TRAINING

7.1 WATERFOWL CENSUS DURING WINTER EVERY YEAR

The bird count during its peak migratory season reaches up to 25000 birds of more than 87 important migratory species. Annual birds census during winter every year is carried out to check the number of birds reported at KCCR. It is imperative to conduct a waterfowl census in the reserve involving scientific

institutions and scientists to arrive at number and variety of migratory birds, assess their corridors and migratory routes, feeding requirements and trends in population status.

The number of birds reported during the last six Birds Census is as under:-

- 2013 - 8571
- 2014 - 18499
- 2015 - 20497
- 2016 - 25302
- 2017 - 21181
- 2018 - 21040

The increase in number of birds commensurate with conservation works done.

7.2 RESEARCH

As the wetland habitat promises new thrust areas and throw open a lot of research topics, it is imminent to conduct field oriented studies in the interest of the reserve ecosystem involving scientific institutions.

7.3 TRAINING AND CAPACITY BUILDING

Training plays an important role in sharpening skills and updating knowledge on recent trends in biodiversity conservation. The training is aimed at strengthening and capacity building of ecosystem communities, committees, front line staff, teachers, officials and school children.

- **In house training:-**

The topics such as Waterfowl census, identification of waterfowl, ecotourism guide for local youth, use of equipments can be imparted. The training can be followed by field visits to the ecosystem and habitats for on hand experience and training.

- **External training:-**

The few selected tourist guides, frontline staff and officials along with the community reserve management committee members will be trained at selected institutions such as Wildlife Institute of India, Bombay Natural History Society, Forest Research Institute etc.

CHAPTER - 8

8.1 PRESCRIPTION FOR PROTECTION AND MONITORING

- Wildlife, which is a part and parcel of the environment, constitutes wealth of the nation. It included wild animals, birds, plants etc. Wildlife is nature's gift

and its declined has an adverse effect of ecology and hence there is an urgent need to protect the wildlife. Since the final demarcation of boundaries on the ground of KCCR has not been initiated and all the area is open. This provides enough opportunity for encroachment and hunting of wildlife animals in the CR. To control the cases of hunting of wildlife animal following action are being taken at present :-

➤ **Protection of Birds and other species**

Daily wages workers under the supervision of local forest staff are being engaged day and night for Patrolling, Rescue and Protection of Wildlife animals/birds in the whole area of CR.

➤ **Awareness Camps**

Awareness camps are being organized regularly in the local community in which they are being educated regarding the importance of wildlife and necessity for protection of wildlife animals. They are also educating that in case any person who contravenes any provision of wildlife protection act and who commits a breach of any condition of the permit under this act shall be punishable with imprisonments for a term which may extend to three year.

8.2 PROTOCOLS FOR MONITORING

- As per the issued guidelines, Departmental level of monitoring are involved for conservation of wetland:-

➤ **Monitoring of Local Staff**

- ❖ Different teams are constituted including Forest Guard and Block Officer for the monitoring and visit of wetland and aquatic animals. They keep on patrolling the area of whole wetland for monitoring the flow of birds and others species. Forest Guard is supposed to visit the area daily and block officer twice in a week.
- ❖ Forest Range officer is supposed to monitoring the wetland once in a week.
- ❖ Senior officer used to visit the area as per there schedule tour programes.

CHAPTER - 9

LEGISLATIVE AND ADMINISTRATIVE MEASURES

As the area is constituted as Community Reserve, any measure to manage, administer and improve the protected area requires consensus and approval from the local stakeholders. The community reserve has a legal sanctity under amended Wildlife Protection Act, 2006. Hence, in order to strengthen the people's active participation in the day to day management of the reserve, a series of committees are proposed to be constituted.

9.1 CONSTITUTION OF KESHOPUR CHHUMB COMMUNITY RESERVE MANAGEMENT COMMITTEE

Under section 36D of Wildlife Protection Act, 1972 (amended up to 2006), the state government is required to constitute a management committee to manage the affairs of the community reserve. The sections are reproduced below:

- (1) The State Government shall constitute a Community Reserve management committee, which shall be the authority responsible for conserving, maintaining and managing the community reserve.
- (2) The committee shall consist of five representatives nominated by the Village Panchayat or where such Panchayat does not exist by the members of the Gram Sabha and one representative of the State Forests or Wild Life Department under whose jurisdiction the community reserve is located.
- (3) The committee shall be the competent authority to prepare and implement the management plan for the community reserve and to take steps to ensure the protection of wild life and its habitat in the reserve.
- (4) The committee shall elect a Chairman, who shall also be the Honorary Wild Life Warden on the community reserve.
- (5) The committee shall regulate its own procedure including the quorum.

As the Keshopur Chhumb Community Reserve falls in five villages' Panchayat lands, all the villages need representation. Hence it is proposed to have the following committee for the purposes of management.

Constitution of Community Reserve Management Committee:-

1. Sarpanch – Village Panchayat Keshopur - Member
2. Sarpanch – Village Panchayat Dalla- Member – Chairman –2007-08
3. Sarpanch – Village Panchayat Miani- Member
4. Sarpanch – Village Panchayat Matwa- Member
5. Sarpanch – Village Panchayat Magarmudian- Member
6. Range Officer (Wildlife), Gurdaspur - Member Secretary

The committee will elect its chairman on rotation of one year basis. The terms and conditions of the committee will have to be decided at the time of constitution by the state government. The committee will deliberate upon the management issues, expenditure and revenue from the reserve and will be final authority for decision making. The proceedings, decision making and planning including the quorum will be decided by the committee itself. Importantly, any revenue arising out of ecotourism and other major activities will be maintained by the committee and will be utilized for the development of the reserve and the villages of the wetland on 50:50 bases. The revenue from the trees of the strip forests of the adjoining reserve area will be shared with the community reserve management committee at the time of harvest as per the Punjab Apportionment of tree rules, 2005.

9.2 CONSTITUTION OF INTER DEPARTMENTAL DISTRICT COORDINATION COMMITTEE

Since the Community Reserve falls in Panchayat land and under multiple land uses, a district level Inter Departmental Coordination Committee is necessary for general coordination and to ease out differences arising due to application of Wildlife Protection Act. The committee is important in the wake of Bird Flu Scare

and other issues arising from time to time. This committee can be constituted by the Deputy Commissioner, Gurdaspur. The committee will meet at least once in two months and decide about the issues pertaining to the reserve and regulate its proceedings on its own including the quorum.

Constitution of District Inter Departmental Coordination Committee:-

1. Deputy Commissioner, Gurdaspur – Chairman
2. Divisional Forest Officer (Wildlife), Gurdaspur - Member Secretary
3. Divisional Forest Officer (Territorial), Gurdaspur - Member
4. District Revenue Officer, Gurdaspur – Member
5. Sub Divisional Magistrate, Gurdaspur – Member
6. District Development & Panchayat Officer, Gurdaspur - Member
7. Supt.Engineer / XEN, Drainage, Gurdaspur – Member
8. Chief Agricultural Officer, Gurdaspur – Member
9. Deputy Director, Animal Husbandary, Gurdaspur – Member
10. Deputy Director, Fisheries, Gurdaspur – Member
11. Public Representatives, Conservationists, Chairman of the Community Reserve Management Committee / Reputed NGO's on special invitation by Chairman or Member Secretary

9.3 CONSTITUTION OF VILLAGE ECO-DEVELOPMENT COMMITTEES

The village level eco-development committees are formed with purpose of implementing any future eco-development projects. This committee is proposed on the lines of Joint Forest Management guidelines issued by Government of Punjab. Also the Forest Development agency and Eco-development agency project guidelines issued by National Afforestation and Eco-development Board,

Government of India are kept in mind in constituting the committees. The constitution of the committee will be decided at the time of preparation of detailed eco-development project for the Keshopur Chhumb Community Reserve.

Divisional Forest Officer (Wildlife) would be approving authority for village level eco-development committees. The Forest / Wildlife guard of the reserve will be member secretary of the committee.

The quorum and other issues regarding frequency of meetings and decisions will be placed before the Keshopur Chhumb Management Committee for approval. The project works will be approved on detailed estimates prepared and submitted to Divisional Forest Officer (Wildlife).

9.4 CONSTITUTION OF ECO-CLUBS & WILDLIFE LOVERS CLUBS IN SCHOOLS & COLLEGES

In order to strengthen Nature and Environmental Awareness among School children, it is proposed to constitute Eco clubs and wildlife Lovers Clubs in all the Schools in and around the Reserve and conduct workshops.

9.5 INVOLVEMENT OF OTHER ORGANISATIONS & NGO'S

The involvement of the reputed Non Governmental Organizations on the Wildlife Conservation work in the reserve to boost the people's participation in conservation work will be encouraged. The NGO's and other interested individuals can contribute much to the development and management of the Community Reserve.

9.6 LEGISLATIVE PROVISIONS FOR PROTECTION UNDER WILDLIFE PROTECTION ACT, 1972 (AMENDED 2006)

The community Reserve is notified under Section 36C of Wildlife Protection Act, 1972 (amended up to 2006). The legal provisions of the above act as applicable in the Community Reserve are as follows:

(1) The State Government may, where the community or an individual has volunteered to conserve wild life and its habitat, declare any private or community land not comprised within a National Park, sanctuary or a conservation reserve, as a community reserve, for protecting fauna, flora and traditional or cultural conservation values and practices.

(2) The provisions of sub-section (2) of section 18, sub-sections (2), (3) and (4) of section 27, sections 30, 32 and clauses (b) and (c) of section 33 shall, as far as may be, apply in relation to a community reserve as they apply in relation to a sanctuary (Sections are reproduced below).

(3) After the issue of notification under sub-section (1) **no change in the land use pattern shall be made within the community reserve** except in accordance with a resolution passed by the management committee and approval of the same by the State Government.

Section 27. Restriction on entry in sanctuary

(1) Every person shall, so long as he resides in the sanctuary, be bound: -

(a) to prevent the commission of an offence against this Act;

(b) where there is reason to believe that any such offence against this Act has been committed in such sanctuary, to help in discovering and arresting the offender;

(c) to report the death of any wild animal and to safeguard its remains until the Chief Wild Life Warden or the authorised officer takes charge thereof;

(d) to extinguish any fire in such sanctuary of which he has knowledge or information and to prevent from spreading, by any lawful means in his power, any fire within the vicinity of such sanctuary of which he has knowledge or information; and

(e) to assist any Forest Officer, Chief Wild Life Warden, Wild Life Warden or Police Officer demanding his aid for preventing the commission of any offence against this Act or in the investigation of any such offence.

(3) No person shall, with intent to cause damage to any boundary-mark of a sanctuary or to cause wrongful gain as defined in the Indian Penal Code, 1860 (45 of 1860), alter, destroy, move or deface such boundary-mark.

(4) No person shall tease or molest any wild animal or litter the grounds of sanctuary.

Section 30. Causing fire prohibited

No person shall set fire to a sanctuary, or kindle any fire, or leave any fire burning, in a sanctuary, in such manner as to endanger such sanctuary.

Section 32. Ban on use of injurious substances

No person shall use, in a sanctuary, chemicals, explosives, or any other substances which injury to or endanger, any wild life in such sanctuary.

Section 33. Control of sanctuaries

(a)The Chief Wild Life Warden shall be the authority who shall control, manage and maintain all sanctuaries and for that purpose, within the limits of any sanctuary: -

(b) shall take such steps as will ensure the security of wild animals in the sanctuary and the preservation of the sanctuary and wild animals therein;

(c) may take such measures, in the interests of wild life, as he may consider necessary for the improvement of any habitat;

CHAPTER - 10

BUDGET AND FINANCAL FORECASE

The management plan is prepared for 10 years from 2018-2028 and the financial forecasters and detailed year wise. The implementation is largely depending on the timely and adequate release of budge for effective implementation of various proposals detailed in the management plan. The summary of component wise costs is give below:-

S no.	Particulars	Daily wage rate Rs 310/- per day		Year wise cost (Rs in lacs)										
		Total Unit	Unit Cost (Rs)	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	PLANTATION AND HABITAT IMPROVEMENT													
1.1	Removal of weeds including disposal	200 Ha	99,000 per Ha	20 Ha	20 Ha	20 Ha	20 Ha	20 Ha	20 Ha	20 Ha	20 Ha	20 Ha	20 Ha	198.00
			Fin	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80	19.80
1.2	Desiltation of wetland	80,000 m ³	153.68 per m ³	-	20000 m ³	-	-	-	30,000 m ³	-	-	-	30,000 m ³	123.00
			Fin	-	30.8	-	-		46.10					46.10

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1.3	Plantation of suitable tall plants	5000 No	403 per plant inc Mtc	1000 no.		-	-	-	2000 no.	-	-	-	2000 no.	20.15
			Fin	4.03					8.06				8.06	
1.3 (a)	Plantation Mtc	5000 No		1000 no.				1000 no.	-	2000 no.		1000 no.	-	3.50
				0.70			0.70		1.40		0.70	-		
1.4	Habitat Improvement	30,000 Rmt	69.75 per Rmt	2000 Rmt	2000 Rmt	2000 Rmt	2000 Rmt	4000 Rmt	4000 Rm	4000 Rm	4000 Rm	4000 Rm	2000 Rmt	20.93
				1.39	1.39	1.40	1.40	2.79	2.79	2.79	2.79	2.79	1.40	
1.5	Watch & Ward for protection of Wild Animal & Plantation in KCCR	24 men (2×12) per annum	8,060 per month	1.93	1.93	1.93	1.93	1.93	1.93	1.94	1.94	1.94	1.94	19.34

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1.6	Rescue and rehabilitation of wild animals, including purchase of tranquilizing equipments and medicines, nets, snack catching kits ,body armor etc.		L/s	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	50.00
													TOTAL	434.92
2	SOIL AND MOISTURE CONSERVATION MEASURES													
2.1	Check dams	1 No.	2.50 lacs	-	2.50	-	-	-	-	-	-	-	-	2.50
2.2	Artificial uplands	5 No.	4.00 lacs per upland	-	4.00	4.00	4.00	4.00	4.00	4.00	-	-	-	20.00

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE, GURDASPUR

2.3	Earthen Nature trails	2000 m	L/s	4.5	-	4.5	-	-	-	-	-	-	-	9.00
2.4	Maintenance of nature trail by good earth	5000 Mt	L/S	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	60.00
TOTAL													91.50	
3	INFRASTRUCTURE													
3.1	Interpretation centre a) Compound Wall b) Road and Parking c) Landscaping d) Toilet Block	1 No. Mtc	L/S	-	-	4.00	-	-	-	5.00	-	-	6.00	15.00

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE, GURDASPUR

3.1	Interpretation centre (Phase ii)	01 No Furnis hing	L/S	-	60.00	-	-	-	-	-	-	-	-	60.00
3.2	Watch towers	3 No. Mtc	L/S	-	-	-	-	4.00 (Mtc)	-	-	-	6.00 (Mtc)	-	10.00
3.3	Pause points	5 No.	L/S	0.50 (Mtc)	-	-	-	-	1.00 (Mtc)	-	-	-	0.80 (Mtc)	2.30
3.4	Bird Hide	L/s	L/S	-	1.00 (Mtc)	-	-	-	1.50 (Mtc)	-	-	-	2.00 (Mtc)	4.50
TOTAL													91.80	
4	SIGNAGES													
	Informatory and directional signages for Keshopur	40 No.	5.00 lacs	2.00	2.00	1.00	-	-	-	-	-	-	-	5.00
TOTAL													5.00	

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE, GURDASPUR

5	ECO DEVELOPMENT AND INCOME GENERATING ACTIVITIES													
5.1	Entry points activities in 5 villages around KCCR Rs 2.00 lacs per village four times in 10 years	05 Village s	L/S		10.00	-	-	-	-	10.00	-	-	10.00	30.00
5.2	Base line and impact assessment of villages through PRA, RRA in 5 villages around KCCR four times in 10 years		L/S	-	-	-	-	-	2.00	-	-	-	2.00	4.00
5.3	Promotion of IGA's including training and exposure visits		L/S	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	50.00
5.4	Formation and training of SHG's		L/S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	20.00
5.5	Awareness of Organic farming			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00
	TOTAL													114.00

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE, GURDASPUR

	INTERPRETATION CENTRE AT KCRR													
6	ADMINISTRATIVE COST													
6.1	Gate keeper cum Parking supervisor	One Mazdoor (26×12) per annum	8060 per month	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	9.70
6.2	Watcher for interpretation centre day time	One Mazdoor (26×12) per annum	8060 per month	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	9.70
6.3	Attendant for tourist & Staff cum helper for day time	One Mazdoor (26×12) per annum	8060 per month	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	9.70
6.4	Gardeners for maintenance of lawn & Landscaping	Two Mazdoor (26×12) per annum	8060 per month	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	19.40
6.5	Night Watchers for Interpretation centre	Two Mazdoor (26×12) per annum	8060 per month	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	1.94	19.40
6.6	Sweeper for cleaning wash Rooms and	One sweeper (26×8hrs ×12) per annum	30 per hour	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	7.50

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE, GURDASPUR

	Campus area													
6.7	Projector Operator Multipurpose	One Man (26×12) per annum	9100 per month	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	10.90
													TOTAL	86.30
7	INFRASTRUCTURAL DEVELOPMENT													
7.1	Furniture for ticket counter, Auditorium hall, Forest Guard office, Cafeteria, Guard Room etc.		L/s	-	4.00	-	-	-	-	2.00	-	-	2.00	8.00
7.2	Silent Generator for Power supply 10 KW		L/s	-	3.50	-	-	-	-	-	-	-	-	3.50
7.3	CCTV Camera for security of campus		L/s	-	1.00	-	-	-	-	-	-	-	-	1.00
7.4	Expenditure for Installation of electricity connection 19 KW		L/s	0.80	-	-	-	-	-	-	-	-	-	0.80
7.5	Computer with Printer	1 No.	L/s	-	0.60	-	-	-	-	-	-	-	-	0.60
7.6	LED TV	2 No.	L/s	-	1.40	-	-	-	-	-	-	-	-	1.40
7.7	Ceiling fan	15 No.	5000 (L/s per fan)	-	0.75	-	-	-	-	-	-	-	-	0.75

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE, GURDASPUR

7.8	Water cooler with RO system	1 No.	L/s	-	0.80	-	-	-	-	-	-	-	-	0.80
7.9	Cameras (DSLR) with lens	1 No.	L/s	-	2.00	-	-	-	-	-	-	-	-	2.00
7.10	Binocular for visitors	5 No.	L/s	-	0.50	-	-	-	-	-	-	-	-	0.50
7.11	Installation of Solar Plant 15 KW	1 No.	L/s	-	10.00	-	-	-	-	-	-	-	-	10.00
													TOTAL	29.35
8	EQUIPMENTS													
8.1	Projector with sound system.		L/s	-	2.00	-	-	-	-	-	-	-	-	2.00
8.2	Lawn Grass cutter (Electric)		L/s	-	0.20	-	-	-	-	-	-	-	-	0.20
8.3	Water pipe for watering the plants (500 ft)		L/s	-	0.05	-	-	-	-	-	-	-	-	0.05
													TOTAL	2.25
9	RECURRING CHARGES													
9.1	Electricity bills.		L/s	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	12.00
9.2	POL for Generator		L/s	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	5.00

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE, GURDASPUR

9.3	Maintenance charges of Tube light, Bulbs and taps		L/s	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	5.00
9.4	Cleaning material for wash rooms and campus area.		L/s	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	5.00
9.5	Misc. Expenses		L/s	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	20.00
													TOTAL	47.00
10	TENT ACCOMMODATION/ BATHROOMS FOR TOURISTS AND VISITORS													
10.1	Five tent set (Swiss) for 10 persons	5 No.	40,000 per tent swiss	-	-	2.00	-	-	-	-	-	-	-	2.00
10.2	Bed etc. for 10 Persons (Quilt, Blanket, Bed Sheets, Led Torches and Kitchen Accessories & Utensils)	10 Set	L/s	-	-	1.00	-	-	-	-	-	-	-	1.00
10.3	Bathroom for Visitors (Five persons used at one time) One each for male & Female	2 No.	L/s	-	-	5.00	-	-	-	-	-	-	-	5.00

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE, GURDASPUR

10.4	Snake Proof Trench & Retaining Wall		L/s	-	-	1.50	-	-	-	-	-	-	-	1.50
10.5	Paint to Boundary wall of Interpretation Centre and Chain Link Fencing		L/s	-	0.50	-	-	-	0.70	-	-	-	0.80	2.00
													TOTAL	11.50
							GRAND TOTAL	913.62 lacs						
							8% Contingency/Office Exp. & other charges	73.10 lacs						
							TOTAL	986.72 lacs (Rs 9,86,72,000/-						

1. The rates for works are calculated at the present wage rate of Rs 310.00 per day per person unskilled labor.
2. The detailed estimates for work for the works and other activities will be prepared with consultancy of Community Reserve Management Committee and approved by Divisional Forest Officer (Wildlife) the as per the budget allotted every year.

3. The works will be as per the Forest Department schedule of rates, PWD rates for the buildings and civil works.
4. The contractual staff will be need based and for the project period only to be recruited on contract basis.
5. The buildings will be departmental property though land will be obtained free of cost on Panchayat lands.
6. Any revenue obtained from the community reserve will be deposited to the Community Reserve Management Committee funds and will be fully utilized for the development of Community Reserve as decided by the committee.

PART-III

KESHOPUR CHHUMB COMMUNITY RESERVE



ANNEXURES

**MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR**

ANNEXURE I

**Department of Forests and Wild Life Preservation
(Forest Branch)**

Notification

No: 34/13/2007/Ft.V/ 6133 Chandigarh, dated the: 22/6/07

Whereas the Government of Punjab is of the opinion that due to its ecological, floral and faunal significance for the purpose of protecting, propagating and developing wildlife and associated ecosystem, the area mentioned in the following schedule shall be declared as a Community Reserve in Gurdaspur District of Punjab. The concerned Panchayats following under community reserve Miani, Keshopur, Matwa, Dalla and Magarmudian in Gurdaspur District have given their consent in the form of resolutions.

Now, therefore, in exercise of powers conferred under section 36-C of The Wild Life (Protection), Act 1972 as amended by Wild Life Protection (Amendment) Act, 2002, the Governor of Punjab is pleased to declare the Chhamb area of Panchayat Land of Villages- Miani, Keshopur, Matwa, Dalla and Magarmudian Teh. & Distt: Gurdaspur, totaling to 850 acres as "**Keshopur Chhamb Community Reserve**" from the date of this notification. The provisions of sub section (2) of section 18, sub-section (2), (3) and (4) of section 27, section 30, 32 and clauses (b) and (c) of section 33 of the Wild Life Preservation Act 1972 as amended from time to time shall also apply to the Community Reserve being notified.

SCHEDULE

Name of District	Area	Boundaries
Gurdaspur Teh. Gurdaspur	Panchayat Chhamb area of Villages Miani (400 acres), Keshopur (136 acres), Matwa (51 acres), Dalla (152 acres) and Magarmudian (111 acres)	<p>North-Agriculture lands of Village Shamshepur and habitation of Village Miani.</p> <p>West- Majithi Minor and Doga Nala crossing Gurdaspur-Dorangla road, Chhamb surrounded by Agriculture lands of Village Bhagawanpur.</p> <p>South- Agriculture land of Villages Keshopur, Sadhu Chak & Bhukra.</p> <p>East-Bahrampur road and habitation of Village Dalla.</p>
Total	850 acres	

Rangulata

Financial Commissioner & Secretary to Govt. Punjab

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

No: 34/13/2007/Ft.V/

Chandigarh, dated the:

A copy with a spare copy of the notification is forwarded to the Controller, Printing & Stationary, Punjab for publishing the same in Govt. gazette.

He is requested to send 50 copies of the printed notification.

Rajpal
Financial Commissioner & Secretary to Govt. Punjab,
Deptt. of Forests & Wildlife Preservation.

No: 34/13/2007/Ft.V/ 6135

Chandigarh, dated the: 25/6/07

A copy is forwarded to the following for information and necessary action:-

1. Principal Chief Conservator of Forests, Punjab, Chandigarh.
- 21 Chief Wildlife Warden & Chief Conservator of Forests, Punjab.
- 31 Private Secretary to Forests Minister, Punjab.
- 41 Private Secretary to Financial Commissioner and Secretary to Govt. Punjab, Deptt. of Forests & Wildlife Preservation.
- 51 Special Secretary to Govt. Punjab, Deptt. of Forests & Wildlife Preservation.

Rajpal
Financial Commissioner & Secretary to Govt. Punjab,
Deptt. of Forests & Wildlife Preservation.

ਪ੍ਰਿੰਟ ਕਰਵਾ ਕੇ ਭੇਜੋ:- ਫਟ-2/ਕੋਪੀਕਰਨ | 10332 ਪੰਜਾਬੀ 16.7.07

ਕਰਕੇ ਜੱਚ ਵਣ ਖਾਣ (ਕਿਸਮ) ਪੰਜਾਬ, ਚੰਡੀਗੜ੍ਹ
ਜਾਂ ਮਾਛੀ ਤੋਹੜੀ ਬੜੀ ਕਾਠਾਈ ਕੀ ਕੋਈ ਕਰਵੇ ਤੀ

2. Rajpal
14.7.07

2 ਪ੍ਰਿੰਟ, ਪੰਚ ਵਣ ਖਾਣ,
ਪੰਜਾਬ, ਚੰਡੀਗੜ੍ਹ।

14/7/07

ਜੇ
13/7

ਪ੍ਰਿੰਟ ਕਰਵਾ ਕੇ 446-48 ਕੋਈ: 23/7/2007

ਜਿਸ ਦੀ ਕਾਪੀ ਕਰਕੇ ਕੋਈ ਕੋਈ ਕਰਵੇ ਤੀ

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

Government of Punjab
Department of Forests and Wild Life Preservation
(Forest Branch)

Notification

No: 34/13/2007/Ft.V/ 2514

Chandigarh, dated the: 17/3/10

In exercise of powers conferred under Section 36-D of the Wildlife (Protection) Act, 1972 (mended upto 2006), the Governor of Punjab is pleased to constitute a the Keshopur Chhamb Community Reserve Management Committee for conserving, maintaining & managing this reserve already declared vide Notification No. 34/13/2007-Ft-V/6133, dated 25.6.2007.

- | | | | |
|----|--|---|-----------|
| 1. | Sarpanch - Village Panchayat Keshopur | - | Member |
| 2. | Sarpanch - Village Panchayat Dalla | - | Member |
| 3. | Sarpanch - Village Panchayat Mianil | - | Member |
| 4. | Sarpanch - Village Panchayat Matwa | - | Member |
| 5. | Sarpanch - Village Panchayat Magarmudian | - | Member |
| 6. | Range Officer (Wildlife), Gurdaspur | - | Secretary |

The Committee shall be the authority responsible for conserving, maintaining and managing the Community Reserve. The Committee shall be the competent authority to prepare and implement the Management Plan for the Community Reserve and to take steps to ensure the protection of wildlife and its habitat in the reserve. The Committee shall elect a Chairman under the supervision of Divisional Forest Officer (Wildlife), Pathankot who will ensure that this meeting is attended by atleast 4 members of the committee. The elected Chairman shall be also the Honorary Wildlife Warden on the Community Reserve. The Committee shall regulate its own procedure including the quorum for all other meetings except the one to elect its Chairman.

R.C.Nayyar

Financial Commissioner Forests and
Principal Secretary to Govt. Punjab,
Deptt. of Forests & Wildlife Preservation.
Chandigarh, dated the: 17/3/10

No: 34/13/2007/Ft.V/ 2515

A copy is forwarded to the following for information and necessary

action:-

1. Principal Chief Conservator of Forests, Punjab, Chandigarh.
2. Chief Wildlife Warden & Chief Conservator of Forests, Punjab.
3. Deputy Commissioner, Gurdaspur.
4. A copy with a spare copy of the notification is forwarded to the Controller, Printing & Stationary, Punjab for publishing the same in Govt. gazette. it is requested to send 50 copies of the printed notification.
5. Divisional Forest Officer, Gurdaspur.


Superintendent Grade-1

ANNEXURE II

**Detail of work Done During the year 2013-2017 on Development of Community - Based
Eco Tourism Facilities at Keshopur Wetland by PIC (Forest), Funding by PHTPB
(IDIPT) Chandigarh**

Sr N O	Particular of Activities	Unit	Qty	Amount expend d (In lakh)
1	Plantation of Suitable tall Plant & Sylvicultural operations	No	3000	10.00
2	Habitat Improvement	Metre	9934	7.50
3	Water fowl Census	No	4	1.43
4	Removal of Weeds	Ha	50	38.14
5	De-siltation of wetland	Cum	2521 2	31.39
6	Artificial Upland	No	3	8.74
7	Construction of Nature Trails	Cum	9166	27.44
8	Bird Hide	No	4	5.00
9	Pause Points	No	3	1.89
10	Signage's	No	21	3.52
11	Entry Points Activities (04 Bus Stop shelter, 04 Shamshangatte, one drain/one Packa Path	Village	5	10.00
12	Base line and impact assessment of villages	No	5	1.54
13	Promotion of IGA's	No	10	15.82
14	Formation of SHG's	No	15	2.10
15	Awareness of Organic camps	No	25	1.00
	Total			165.51

ANNEXURE III

FOLORA ALGAE*

Sr. No.	Scientific Name
1.	<i>Anabbaena oseillarioides</i> var <i>angustus</i>
2.	<i>Anabaena variabilis</i>
3.	<i>Chroococcus minutes</i>
4.	<i>Cylindrospermum doryphorum</i>
5.	<i>Cylindrospermum majus</i>
6.	<i>Cylindrospermum michailovskoense</i>
7.	<i>Gleothece samoensis</i> var <i>major</i>
8.	<i>Merismopedia glauca</i>
9.	<i>Merismopedia punctata</i>
10.	<i>Navicula platystom</i>
11.	<i>Oedogonium</i> sp.
12.	<i>Oscillatoria animalii</i> var <i>tenuoir</i>
13.	<i>Oscillatoria chilkensis</i>
14.	<i>Oscillatoria brevis</i>
15.	<i>Pediastrum simplex</i>
16.	<i>Scenedesmus</i> sp.
17.	<i>Spirulina major</i>
18.	<i>Spirulina subsalsa</i>
19.	<i>Spirulina subtilissima</i>
20.	<i>Synecocystis aquatilis</i>

(* Source: Punjab State Council for Science & Technology, Chandigarh)

**FLORA* – HERBS, SHRUBS, CLIMBERS AND TREES OF THE
LOCALITY IN AND AROUND THE COMMUNITY RESERVE**

S.No	Botanical Name	Local name	Description
21.	<i>Abrus precatorius</i>	Ratti	Climber
22.	<i>Acacia catechu</i>	Khair	Tree
23.	<i>Acacia nilotica</i>	Kikkar, Babul	Tree
24.	<i>Achyranthes aspera</i>	Puthkanda, Chirchitta	Herb
25.	<i>Adhatoda vasica</i>	Basuta	Herb
26.	<i>Adhatoda zeylanica,</i>	Basuta	Herb
27.	<i>Ageratum conyzoides</i>	Bhakkoo	Herb
28.	<i>Albizzia oloratissima</i>	Siris	Tree
29.	<i>Albizzia lebbeck</i>	Siris	Tree
30.	<i>Amaranthus gracilis</i>	Chulai	Herb
31.	<i>Amaranthus spinosa</i>	Chulai	Herb
32.	<i>Ammymajus bengalensis</i>	Bishop's weed	Herb
33.	<i>Ansomeles indica</i>		Herb
34.	<i>Andropogon contortus</i>	Jawar	Grass
35.	<i>Andropogon monticola</i>	Jawar	Grass
36.	<i>Anogeissus latifolia</i>	Gum ghatti	Tree
37.	<i>Arundo donax</i>	Nara	Grass
38.	<i>Asphodelus modesea</i>	Piazi or Dhugat	Herb
39.	<i>Bauhinia vahlii</i>	Kachnar	Tree
40.	<i>Boerhavia diffusa</i>	Itsit, Gadha bel	Herb
41.	<i>Bombax ceiba</i>	Simbal	Tree
42.	<i>Bombax malabaricum</i>	Semul	Tree

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

43.	<i>Butea frondosa</i>	Dhak	Tree
44.	<i>Butea monosperma</i>	Dhak	Tree
45.	<i>Calotropis procera</i>	Akk	Shrub
46.	<i>Cannabis sativa</i>	Bhang	Herb
47.	<i>Carissa spinarum</i>	Karunda	Herb
48.	<i>Cassia fistula</i>	Amaltas	Tree
49.	<i>Cassia occidentalis</i>	Kasandi	Herb
50.	<i>Celastrus paniculata</i>	Brain Clearer	Climber
51.	<i>Ceratophyllum</i>	Ceratophyllum	Aquatic
52.	<i>Chenopodium alba</i>	Bathu	Herb
53.	<i>C. ambrosioides</i>	Bathu	Herb
54.	<i>Chrysopogon fulvus</i>	Dhaura	Grass
55.	<i>Citrus acida</i>	Lemon	Tree
56.	<i>Citrus aurantium</i>	Sweet Orange	Tree
57.	<i>Citrus decumana</i>	Chakotra	Tree
58.	<i>Citrus limetta</i>	Sweet lemon	Tree
59.	<i>Citrus medica</i>	Nimbu or Lemon	Tree
60.	<i>Cleome viscosa (Polanisia icosandra)</i>	Tickweed	Herb
61.	<i>Cynodon dactylon</i>	Khabal	Grass
62.	<i>Cyperus rotundus</i>	Dila	Grass
63.	<i>Dalbergia sissoo</i>	Tali	Tree
64.	<i>Digeria muricata</i>	Tandala	Herb
65.	<i>Dodonea viscosa</i>	Sanatta	Shrub
66.	<i>Eclipta alba</i>	Bhringraj	Herb
67.	<i>Ehretia laevis</i>	Chamror	Tree

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

68.	<i>Eichornia crassipes</i>	Botti, Jalkumbhi	Aquatic
69.	<i>Elaeodendron glaucum</i>	Marindu	Tree
70.	<i>E. roxburghii</i>	Marindu	Tree
71.	<i>Emblica officinalis</i>	Amla	Tree
72.	<i>Erigeron bonariensis</i>	Daryai buti, Phullani	Herb
73.	<i>Eriobotrya japonica</i>	Loquat	Tree
74.	<i>Erythrina suberosa</i>	Pangra	Tree
75.	<i>Eucalyptus</i> sp.	Safeda	Tree
76.	<i>Eugenia jambolana</i> (<i>Syzygium cumini</i>)	Jamun	Tree
77.	<i>Eulaliopsis binata</i> ,	Baggar	Grass
78.	<i>Euphorbia hirta</i>	Dodak	Herb
79.	<i>Ficus bengalensis</i>	Bor	Tree
80.	<i>Ficus racemosa</i>	Gular	Tree
81.	<i>Ficus religiosa</i>	Papal	Tree
82.	<i>Flacourtica indica</i>	Kangu	Tree
83.	<i>Flacourtica ramontchii</i>	Kangu	Tree
84.	<i>Heteropogon contortus</i>	Lambu	Grass
85.	<i>Hibiscus vitifolius</i>	Jasum	Herb
86.	<i>Holarrhena antidysenterica</i>	Kura	Tree
87.	<i>Hydrilla</i>	Pani da jala, Kureleri	Aquatic
88.	<i>Ipomea carnea</i>	Walaiyati ak	Shrub
89.	<i>Ipomea nil</i>	Japanese morning-glory	Shrub
90.	<i>Ischaemum angustifolium</i>	Baggar	Grass
91.	<i>Jussiaea suffruticosa</i>		Aquatic
92.	<i>Kydia calycina</i>	Pula	Tree

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

93.	<i>Lannea coromandelica,</i>	Kaimbal	Tree
94.	<i>Lantana camara</i>	Kuree, Ghaneri	Shrub
95.	<i>Lemna major</i>	Vadda pana	Aquatic
96.	<i>Lemna minor</i>	Choto pana, Pacha	Aquatic
97.	<i>Mallotus philippensis</i>	Kamal	Tree
98.	<i>Mangifera indica</i>	Amb	Tree
99.	<i>Melia azedarach</i>	Dek	Tree
100.	<i>Millettia auriculata</i>	Solangen	Tree
101.	<i>Mimosa himalayana</i>	Dadrrar	Herb
102.	<i>Mitragyna parvifolia</i>	Kalam	Tree
103.	<i>Morus alba</i>	Tut	Tree
104.	<i>Murraya koenigii</i>	Kari patta	Tree
105.	<i>Musa paradisiacal</i>	Kela	Tree
106.	<i>Nelumbium speciosum</i>	Kamal	Aquatic
107.	<i>Nyctanthes arbor-tristis</i>	Huri	Shrub
108.	<i>Odina wodier</i>	Kaimbal	Tree
109.	<i>Ougeinia dalbergioides</i>	Sandan	Tree
110.	<i>Ougeinia ougeinensis,</i>	Sandan	Tree
111.	<i>Oxalis corniculata</i>	Khatti buti, Tin patti, Khatt mitha	Herb
112.	<i>Parthenium hysterophorus</i>	Gajar ghaa	Herb
113.	<i>Phyla nodiflora</i>		Herb
114.	<i>Pistacia integerrima</i>	Kangar	Tree
115.	<i>Polygonum lapathifolia</i>	Willow weed	Herb
116.	<i>Pongamia pinnata</i>	Charr	Herb
117.	<i>Populus sp.</i>	Populus	Tree

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118.	<i>Portulaca oleracea</i>	Kulfa, Salunak	Herb
119.	<i>Potamogeton</i>	Pond weed	Aquatic
120.	<i>Psidium guava</i>	Amrud	Tree
121.	<i>Pueraria tuberosa</i>	Salorh	Climber
122.	<i>Punica granatum</i>	Anar	Tree
123.	<i>Pyrus communis</i>	Nashpati	Tree
124.	<i>Rumex dentatus</i>	Jungle palak	Herb
125.	<i>Saccharum bengalensis</i>	Ganna, Kamad, Kana	Grass
126.	<i>Saccharum munja</i>	Sarkanda, Munj	Grass
127.	<i>Saccharum spontaneum</i>	Kahi, Kans	Grass
128.	<i>Salvia plebeian</i>		Herb
129.	<i>Sesbania bispinosa</i>	Jaintar, Jayanti	Tree
130.	<i>Sida cordifolia</i>	Barela, Binjani	Shrub
131.	<i>Solanum nigrum</i>	Makoh	Herb
132.	<i>Sonchus asper</i>	Sow Thistle	Herb
133.	<i>Themeda anathera</i>	Lungi	Grass
134.	<i>Toona ciliate</i>	Toon	Tree
135.	<i>Trianthema portulacastrum</i>	Bishkapra, Itsit	Herb
136.	<i>Typha elephantine</i>	Elephant grass	Grass
137.	<i>Urena lobata</i>	Valiti san	Shrub
138.	<i>Verbascum thapsus</i>	Vishav candle	Herb
139.	<i>Vitex negundo</i>	Marwan	Herb
140.	<i>Wendlansia exserta</i>	Pansara	Tree
141.	<i>Wendlansia heynei</i>	Pansara	Tree
142.	<i>Woodfordia floribunda</i>	Dhawi	Herb
143.	<i>Woodfordia fruticosa,</i>	Dhawi	Herb

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144.	<i>Xanthium strumarium</i>	Gutt pattani, Bandarian	Herb
145.	<i>Zizyphus jujuba</i>	Ber	Tree
146.	<i>Zizyphus mauritiana,</i>	Ber	Tree
147.	<i>Zizyphus nummularia</i>	Malha, Kokan ber	Tree
	Ferns (Pteridophytes)		
149.	<i>Marsilea</i> sp.	Water clover	
150.	<i>Pteris</i> sp.		
151.	Moss (Gymnosperms)		
152.	<i>Fissidens</i> sp.		

(* Source: Punjab State Council for Science & Technology, Chandigarh)

ANNEXURE IV

FAUNA-MAMMALS WITH LEGAL AND LOCAL STATUS

Sr No.	Order/Family/Genus	Common Name	Schedule (WLP)	Local Status
Order: Chiroptera, Family: Pteropidae				
1.	<i>Pteropus giganteus</i> (Brunnich)	Fruit Bat	Vermin	Common
Order: Pholidata, Family: Manidae				
2.	<i>Manis crassicaudata</i> (Gray)	Indian Pangolin	Schedule I	Rare
Order: Primata, Family: Cercopithecidae				
3.	<i>Macaca mulatta</i> (Zimmermann)	Rhesus Macaque	Schedule II Part II	Common
Order: Rodentia, Family: Scuridae				
4.	<i>Funambulus palmarum</i> (Linn)	Three Striped Palm Squirrel	Schedule IV	Common
Family: Muridae				
5.	<i>Rattus rattus</i> (Linn)	Common House Rat	Vermin	Common
6.	<i>Bandicota bengalensis</i> (Gray & Hardwicke)	Indian Mole Rat	Vermin	Common
Family: Hystricidae				
7.	<i>Hystrix indica</i> (Kerr)	Indian Porcupine	Schedule IV	Common
Order: Lagomorpha				
8.	<i>Lepus nigricollis</i> (Cuvier)	Indian Hare	Schedule IV	Common
Order: Carnivora, Family: Felidae				

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9.	<i>Felis chaus</i> (Gray)	Jungle Cat	Schedule IV	Uncommon
Family: Viverridae				
10.	<i>Veverricula indica</i> (Desmarest)	Small Indian Civet	Schedule IV	Common
Family: Herpestidae				
11.	<i>Herpestes edwardsi</i> (Geoffroy)	Common Mongoose	Schedule IV	Common
12.	<i>Herpestes auropunctatus</i> (Hodgson)	Small Indian Mongoose	Schedule IV	Common
Family: Cervidae				
13.	<i>Axis porcinus</i> (Zimmermann)	Hog Deer	Schedule IV	Common
14.	<i>Cervus unicolor</i> (Kerr)	Sambar	Schedule IV	Uncommon
15.	<i>Muntiacus muntjak</i> (Boddaert)	Barking Deer	Schedule IV	Rare
Family: Suidae				
16.	<i>Sus scrofa</i> (Wagner)	Wild Boar	Schedule IV	Common

FAUNA- FISHES* IN RESERVE AND FARMS

S. No.	Zoological Name	Common Name	Vernacular Name	Commercial / Wild
1.	<i>Amblypharyngodon mola</i>	Mola carplet	Makhni	Wild
2.	<i>Aorichthys seenghala</i>	Giant river catfish	Sanghara, Sengharee	Commercial
3.	<i>Catla catla</i>	Catla	Thaila, Thail, Catla, Katla	Commercial
4.	<i>Channa gachua</i>	Gachua	Dowla	Commercial
5.	<i>Channa marulius</i>	Great snakehead	Kubra, Sawal, Sol, Dowlah, Chotti sol, Saul	Commercial
6.	<i>Channa punctatus</i>	Spotted snakehead	Dallunga, Dolla, Daula, Duloora, Karrar	Commercial
7.	<i>Channa striatus</i>	Snakehead murrel	Sowl, Dhoali, Carrodh, Daula, Karrar, Soul	Commercial
8.	<i>Cirrhina mrigala</i>	Mrigal	Naraini, Marak, Mori, Mrigal, Murakah, Movakaha	Commercial
9.	<i>Cirrhina reba</i>	Reba carp	Mori, Sunni, Chunni	Wild
10.	<i>Clarias batracus</i>	Walking catfish, Magar	Magur, Khagga, Maghura, Kugga	Commercial
11.	<i>Clupisoma garua</i>	Gargua bachcha, Guarchcha	Dhungi, Bachwa, Dhungna, Karad, Dhuan, Ghalli, Challee, Bachva	Wild
12.	<i>Cyprinus carpio</i> var. <i>communis</i>	Common carp or scale carp	Carp	Commercial
13.	<i>Eutropiichthys vacha</i>	Batchawa	Dhungi, Ghalli, Bachwa, Dhuan,	Wild

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		vacha	Baiki, Jhalvi, Brain, Challi	
14.	<i>Heteropneusters fossilis</i>	Stinging catfish	Lahrrod, Nullie, Sangi, Singi, Nullahi, Nalaki, Singhi	Commercial
15.	<i>Hypophthalmichthys molitrix</i>	Silver carp	Silver	Commercial
16.	<i>Labeo calbasu</i>	Orange fin labeo	Kalahan, Kalbans, Dini	Commercial
17.	<i>Labeo dero</i>		Gid, Giddah	Wild
18.	<i>Labeo dyocheilus</i>		Konti, Kunni, Butal, Paratha, Dhai, Torki	Commercial
19.	<i>Labeo gonius</i>	Kuria labeo	Sereehan, Sirheen, Siriha, Seerha	Wild
20.	<i>Labeo rohita</i>	Rohu	Rohu, Dambra, Tapra, Dumra, Dhambra	Commercial
21.	<i>Mystus cavasius</i>	Gangetic mystus	Kinger, Tingra, Keenger	Wild
22.	<i>Mystus vittatus</i>	Striped dwarf catfish	Kala kinder, Kabakander, Kinger, Tingra	Wild
23.	<i>Notopterus chitala</i>		Batoo, Pari, Parri	Commercial
24.	<i>Notopterus notopterus</i>	Bronze featherback, Grey featherback	Pari, Moh, But, Battu, Purri, Payi, Butt	Commercial
25.	<i>Puntius ticto</i>	Ticto barb, Firefin barb, Two spot barb	Ticher, Chidu, Pandra	Wild
26.	<i>Rita rita</i>	Rita	Khagga, Khaga	Commercial
27.	<i>Wallago attu</i>	Wallago boal	Mullee, Mulley, Mulle	Commercial

(* Source: Punjab State Council for Science & Technology, Chandigarh)

ANNEXURE -V

CHECKLIST OF BIRDS OF GURDASPUR DISTRICT

No.	* Plate / Page Number	Common Name	Scientific Name	Status/ Occurrence
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FAMILY: - PODICIPEDIDEA [GREBES]

1	75 178	GREAT CRESTED GREBE.	<i>Podiceps cristatus</i>	WM/R
2	75 178	LITTLE GREBE.	<i>Podiceps ruficollis</i>	RB/UC

FAMILY: - PHALACROCORACIDAE [CORMORANT AND DARTER]

3.	77 182	LARGE CORMORANT.	<i>Phalacrocorax carbo.</i>	RB/C
4.	77 182	INDIAN CORMORANT.	<i>Phalacrocorax fuscicollis</i>	IB/C
5.	77 182	LITTLE CORMORANT.	<i>Phalacrocorax niger.</i>	RB/C
6.	77 182	DARTER.	<i>Anhinga rufa.</i>	RB/C

FAMILY: - ARDEIDAE [HERONS AND BITTERN'S]

7.	79 186	GREY HERON.	<i>Ardea cinerea.</i>	RB/UC
8.	79 186	PURPLE HERON.	<i>Ardea purpurea.</i>	RB/C
9	78 184	POND HERON OR PADDY BIRD.	<i>Ardeola grayii.</i>	RB/C
10	78 184	CATTLE EGRET.	<i>Bubulcus-ibis</i>	RB/C
11	78 184	LARGE EGRET.	<i>Ardea alba</i>	RB/C

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12	78	184	SMALLER EGRET.	<i>Egretta intermedia.</i>	RB/C
13	78	184	LITTLE EGRET.	<i>Egretta garzetta.</i>	RB/C
14	80	188	NIGHT HERON.	<i>Nycticorax nycticorax</i>	RB/UC
15	80	188	CINNAMON BITTERN.	<i>Ixobrychus cinnamomeus</i>	RB/UC
16	80	188	YELLOW BITTERN.	<i>Ixobrychus sinensis.</i>	RB/UC
17	80	188	BLACK BITTERN.	<i>Ixobrychus flavicollis.</i>	RB/UC

FAMILY: - CICONIDAE [STORKS]

18	84	196	PAINTED STORK	<i>My cteria leuco cephalo.</i>	RB/UC
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FAMILY: - THRESKIORNITHIDAE [IBISES AND SPOONBILL]

19.	81	190	BLACK IBIS (Nanjai)	<i>Pseudibis papillosa</i>	RB/C
20.	81	190	SPOONBILL (Nanjai)	<i>Platalea leucorodia</i>	WM/R

FAMILY: - ANATIDAE [GEESE AND DUCK'S]

21	7	32	GREYLAG GOOSE.	<i>Anser anser.</i>	WM/C
22	8	34	BARHEADED GOOSE. (Nanjai)	<i>Anser indicus</i>	WM/R
23	8	34	LESSER WHISTLING DUCK.	<i>Dendrocygna javanica</i>	RB/C
24	8	34	RUDDY SHELDUCK (BRAHMINY DUCK)	<i>Tadorna ferruginea.</i>	WM/C
25	11	40	PINTAIL.	<i>Anas acuta.</i>	WM/C
26	11	40	COMMON TEAL.	<i>Anas crecca.</i>	WM/C
27	10	38	MALLARD.	<i>Anas platyrhynchos.</i>	WM/UC
28	10	38	GADWALL.	<i>Anas strepera.</i>	WM/C
29	10	38	EURASIAN WIGEON.	<i>Anas penelope.</i>	WM./C

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30	11	40	GARGANEY.	<i>Anas querquedula.</i>	WM/UC
31	11	40	SHOVELER.	<i>Anas clypeata.</i>	WM/C
32	12	42	REDCRESTED POCHARD.	<i>Netta rufina.</i>	WM/C
33	12	42	COMMON POUCHARD.	<i>Aythya ferina.</i>	WM/C
34.	13	44	COMMON MERGANSER	<i>Mergus merganser.</i>	WM/R

FAMILY: - ACCIPITRIDAE [KITES, HAWKS, EAGLES, VULTURES AND ALLIES].

35	59	146	BLACK WINGED KITE.	<i>Elanus caeruleus.</i>	RB/C
36	68	164	HONEY BUZZARD.	<i>Pernis ptilorhyncus.</i>	IB/UC
37	59	146	BLACK KITE.	<i>Milvus migrans migrans.</i>	RB/UC
38	59	146	PARIAH KITE.	<i>Milvus migrans govinda.</i>	IB/UC
39	59	146	BRAHMINY KITE.	<i>Haliastur indus.</i>	IB/UC
40	66	160	SHIKRA.	<i>Accipiter badius.</i>	RB/UC
41	68	164	WHITE EYED BUZZARD	<i>Butastur teesa.</i>	RB/R
42	71	170	CHANGEABLE HAWK EAGLE.	<i>Spizaetus cirrhatus limnaeetus.</i>	RB/UC
43	71	170	CRESTED HAWK- EAGLE.	<i>Spizaetus cirrhatus cirrhatus.</i>	RB/C
44	71	170	BONELLIS' EAGLE.	<i>Hieraaetus fasciatus.</i>	RB/UC
45	71	170	BOOTED HAWK EAGLE.	<i>Hieraaetus pennatus.</i>	RB/UC
46	70	168	TAWNY EAGLE.	<i>Aquila rapax vindhiana.</i>	WM/UC
47	69	166	GREAT SPOTTED EAGLE.	<i>Aquila clanga.</i>	WM/R
48	69	166	LESSER-SPOTTED EAGLE.	<i>Aquila pomarina.</i>	WM/R
49	63	154	BLACK EAGLE.	<i>Ictinaetus malayensis.</i>	IB/R
50	60	148	PALLAS'S FISHING	<i>Haliaeetus leucoryphus.</i>	RB/UC

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			EAGLE.		
51	61	150	INDIAN WHITE BACKED VULTURE.	<i>Gyps bengalensis.</i>	RB/C
52	61	150	SCAVENGER VULTURE.	<i>Neophron percnopterus.</i>	RB/C
53	65	158	HEN HARRIER.	<i>Circus cyaneus.</i>	WM/R
54	64	156	MARSH HARRIER.	<i>Circus aeruginosus.</i>	WM/C
55	63	154	SHORT-TOED EAGLE.	<i>Circaetus gallicus.</i>	RB/UC
56	63	154	CRESTED SERPENT EAGLE.	<i>Spilornis cheela.</i>	RB/C
57	59	146	OSPREY.	<i>Pandion haliaetus.</i>	RB/UC
58		158	PALLID HARRIER.	<i>Circus macrourus.</i>	WM/R

FAMILY: - FALCONIDAE [FALCON'S / KESTREL]

59	74	176	LAGGAR FALCON.	<i>Falco biarmicus jugger.</i>	WM/R
60	74	176	PEREGRINE FALCON.	<i>Falco peregrinus japonensis.</i>	WM/R
61	73	174	ORIENTAL FALCON (HOBBY)	<i>Falco severus.</i>	? /R

FAMILY: - PHASIANIDAE [PARTRIDGES, QUAIL AND PHEASANTS].

62	1	18	BLACK PARTRIDGES/ FRANCOLIN.	<i>Francolinus francolinus</i>	RB/C
63	1	18	GREY PARTRIDGES / FRANCOLIN.	<i>Francolinus pondicerianus.</i>	RB/C
64	2	20	GREY QUAIL (COMMON).	<i>Coturnix coturnix.</i>	RB/C
65	2	20	BLACK BREASTED QUAIL (RAIN QUAIL)	<i>Coturnix coromandelica.</i>	RB/C
66	2	20	BLUE BREASTED QUAIL.	<i>Coturnix chinensis.</i>	RB/C

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67	5	28	RED JUNGLE FOWL.	<i>Gallus gallus.</i>	RB/C
68	6	30	COMMON PEAFOWL.	<i>Pavo cristatus.</i>	RB/C

FAMILY: TURNICIDAE [BUSTARD-QUAILS]

69	2	20	BARRED BUTTON QUAIL	<i>Turnix suscitator.</i>	RB/R
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FAMILY: - CARUIDAE [CRANES]

70	37	98	SARUS CRANE.	<i>Grus antigone.</i>	RB/C
71	37	98	DEMOISELLE CRANE	<i>Grus virgo</i>	WM/R
72	37	98	COMMON CRANE	<i>Grus grus</i>	WM/C

FAMILY: - RALLIDAE [RAIL'S CRAKES, GALLINULES & ALLIES]

73	39	102	RUDDY CRAKE.	<i>Porzana fusca.</i>	? / R
74	38	100	BROWN CRAKE.	<i>Amaurornis akool.</i>	? / R
75	38	100	WHITE BREASTED WATER HEN	<i>Amaurornis phoenicurus.</i>	RB/C
76	39	102	WATER COCK.	<i>Gallixrex cinerea.</i>	M/R
77	39	102	INDIAN GALLINULE/ INDIAN MOORHEN.	<i>Gallinula chloropus.</i>	RB/C
78	39	102	PURPLE GALLINULE/ PURPLE MOORHEN.	<i>Porphyrio porphyrio.</i>	RB/C
79	39	102	COOT.	<i>Fulica atra.</i>	WM/C

FAMILY: - JACANIDAE [JACANAS]

80	48	122	PHEASANT TAILED JACANA.	<i>Hydrophasianus chirurgus.</i>	RB/C
81	48	122	BRONZEWINGED JACANA.	<i>Metopidius indicus.</i>	RB/C

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FAMILY: - CHARADRIIDAE

[WADERS-LAPWINGS, PLOVERS, SANDPIPERS, STINTS, SNIPE].

82	51	130	WHITE TAILED LAPWING.	<i>Vanellus leucurus</i>	WM/UC
83	51	130	RED-WATTLED LAPWING.	<i>Vanallus indicus.</i>	RB/C
84	51	130	YELLOW-WATTLED LAPWING.	<i>Vanellus malabaricus.</i>	IB/R
85	50	126	LITTLE RINGED PLOVER.	<i>Charadrius dubius.</i>	BR/C
86	42	110	BLACK-TAILED GODWIT.	<i>Limosa limosa.</i>	WM/R
87	50	126	KENTISH PLOVER.	<i>Charadrius alexandrinus.</i>	WM/UC
88	42	110	CURLEW. (EURASIAN)	<i>Numenius arquata.</i>	WM/R
89	42	110	BARTAILED GODWIT.	<i>Limosa lapponica</i>	WM/R
90	43	112	SPPOTED or DUSKY REDSHANK	<i>Tringa erythropus.</i>	WM/R
91	43	112	COMMON REDSHANK.	<i>Tringa totanus.</i>	WM/C
92	43	112	MARSH SANDPIPER.	<i>Tringa stagnatilis.</i>	WM/C
93	43	112	GREEN SHANK.	<i>Tringa nebularia.</i>	WM/C
94	43	112	GREEN SANDPIPER.	<i>Tringa ochropus.</i>	WM/C
95	43	112	WOOD SANDPIPER.	<i>Tringa glareola.</i>	WM/UC
96	44	114	COMMON SANDPIPER.	<i>Tringa hypoleucos.</i>	WM/C
97	41	108	FANTAIL SNIP (COMMON).	<i>Gallinago gallinago.</i>	WM/UC
98	41	108	JACK SNIPE.	<i>Gallinago minima.</i>	WM/UC
99	45	116	LITTLE STINT	<i>Calidris minuta.</i>	WM/C
100	45	116	LONG-TOED STINT.	<i>Calidris subminuta.</i>	WM/C
101	46	118	RUFF AND REAVE	<i>Philomachus pugnax.</i>	WM/C

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FAMILY: - RECURVIROSTRIDAE [AVOCET AND ALLIES]

102	48	122	BLACK WINGED STILT.	<i>Himantopus himantonus</i>	RB/C
103	48	122	AVOCET.	<i>Recurvirostra avosetta</i>	WM/UC

FAMILY: - LARIDAE [GULLS AND TERNS]

104	53	134	GREAT BLACK HEADED GULL.	<i>Larus ichthyaetus.</i>	WM/R
105	54	136	BROWN HEADED GULL.	<i>Larus brunnicephalus.</i>	WM/R
106	54	136	BLACK HEADED GULL.	<i>Larus ridibundus.</i>	WM/R
107	55	138	INDIAN RIVER TERN.	<i>Sterna aurantia.</i>	RB/C
108	56	140	COMMON TERN.	<i>Sterna hirundo.</i>	RB/C
109	57	142	BLACK BELLIED TERN.	<i>Sterna acuticauda.</i>	IB/R

FAMILY: - GLAREOLIDAE [COURSER]

110	47	120	INDIAN COURSER.	<i>Cursorius coromandelicus.</i>	? / R
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FAMILY: - COLUMBIDAE [PIGEON'S AND DOVES]

111	32	88	BLUE ROCK PIGEON.	<i>Columba livia.</i>	RB/C
112	34	92	RUFIOUS TURTLE DOVE	<i>Streptopelia orientalis</i>	RB/UC
113	34	92	INDIAN RING DOVE.	<i>Streptopelia decaocto.</i>	RB/C
114	34	92	RED TURTLE DOVE.	<i>Streptopelia tranquebarica.</i>	RB/C

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115	34	92	SPOTTED DOVE.	<i>Streptopelia chinensis.</i>	RB/C
116	34	92	LITTLE BROWN DOVE.	<i>Streptopelia senegalensis.</i>	RB/C

FAMILY: - PSITTACIDAE [PARAKEETS]

117	25	70	ALEXANDRINE PARAKEET	<i>Psittacula eupatria.</i>	RB/C
118	27	70	ROSE RINGED PARAKEET.	<i>Psittacula krameri.</i>	RB/C
119	25	70	PLUM HEADED PARAKEET.	<i>Psittacula cyanocephala.</i>	RB/C
120		70	GREY HEADED PARAKEET	<i>Psittacula finschii.</i>	RB/C

FAMILY: - CUCULIDAE [CUCKOOS]

121	23	66	COMMON HAWK CUCKOO.	<i>Cuculus varius.</i>	SM/C
122	23	66	INDIAN CUCKOO.	<i>Cuculus micropterus.</i>	SM/C
123	23	66	THE CUCKOO.	<i>Cuculus canorus.</i>	SM/UC
124	24	68	KOEL-CUCKOO.	<i>Eudynamys scolopacea.</i>	RB/C
125	24	68	LARGE COUCAL (CROW PHEASANT).	<i>Centropus sinensis.</i>	RB/C
126	24	68	LESSER COUCAL.	<i>Centropus toulou.</i>	RB/C

FAMILY: - STIGIDAE [OWL'S]

127	28	78	BARN OWL	<i>Tyto alba.</i>	RB/R
128	29	80	GREAT HORNED OWL (EAGLE OWL).	<i>Bubo bubo.</i>	RB/UC
129	30	82	JUNGLE OWLET.	<i>Glaucidium radiatum.</i>	RB/C
130	30	82	BARRED OWLET.	<i>Glaucidium cuculoides.</i>	RB/UC

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

131	30	82	SPOTTED OWLET.	<i>Athene brama.</i>	RB/UC
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FAMILY: - CAPRIMULGIDAE [NIGHTJAR'S]

132	31	84	LITTLE NIGHTJAR (INDIAN NIGHT-JAR)	<i>Caprimulgus asiaticus.</i>	RB/UC
133	31	84	FRANKLIN'S NIGHTJAR	<i>Caprimulgus affinis.</i>	RB/C

FAMILY: - APODIDAE [SWIFTS]

134	27	76	HOUSE SWIFT.	<i>Apus affinis.</i>	RB/C
135	27	76	PALM SWIFT.	<i>Cypsiurus balasiensis.</i>	RB/UC

FAMILY: - ALCEDINIDAE [KINGFISHERS]

136	21	62	HIMALAYAN PIED KINGFISHER	<i>Ceryle rudis..</i>	WM/C
137	21	62	LESSER PIED KINGFISHER	<i>Megaceryle lugubris.</i>	WM/R
138	21	62	COMMON KINGFISHER	<i>Alcedo atthis.</i>	RB/C
139	21	62	STORK-BILLED KINGFISHER	<i>Pelargopsis capensis.</i>	RB/UC
140	21	62	WHITE-BREADED KINGFISHER.	<i>Halcyon smyrnensis.</i>	RB/C

FAMILY: - MEROPIDAE [BEE-EATERS]

141	22	64	BLUE-TAILED BEE- EATER.	<i>Merops philippinus.</i>	RB/C
142	22	64	GREEN BEE-EATER.	<i>Merops orientalis.</i>	RB/C

FAMILY: - CORACIIDAE [ROLLERS]

143	20	60	INDIAN ROLLER.	<i>Coracias benghalensis.</i>	RB/C
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MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

FAMILY: - UPUPIDAE [HOOPOES]

144	20	60	HOOPOE.	<i>Upupa epops.</i>	RB/C
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FAMILY: - BUCEROTIDAE [HORN BILLS]

145	18	56	COMMON GREY HORNBILL.	<i>Ocyrceros birostris.</i>	RB/C
146	18	56	INDIAN PIED HORNBILL.	<i>Anthracosceros albirostris.</i>	RB/C

FAMILY: - CAPITONIDAE [BARBETS]

147	17	52	LARGE GREEN BARBET.	<i>Megalaima zeylanica.</i>	RB/C
148	17	52	BLUE-THROATED BARBET.	<i>Megalaima asiatica.</i>	RB/UC
149	17	52	COPPERSMITH BARBET.	<i>Megalaima haemacephala.</i>	IB/UC

FAMILY: - PICIDAE [WOOD PECKERS]

150	14	46	WRYNECK.	<i>Jynx torquilla.</i>	WM/UC
151	15	50	LESSER GOLDEN BACKED WOODPECKER/BLACK FUMPED FLAME BACK.	<i>Dinopium benghalense.</i>	RB/C
152	16	50	GOLDEN BACKED WOODPECKER.	<i>Dinopium shorii.</i>	RB/C
153	15	48	HIMALAYAN PIED WOODPECKER.	<i>Dendrocopos himalayensis.</i>	RB/UC
154	15	48	YELLOW CROWNED WOODPECKER.	<i>Dendrocopos mahrattensis.</i>	RB/UC
155	16	50	BLACK BACKED WOODPECKER.	<i>Chrysocolaptes fectivus</i>	RB/R
156	16	50	LARGER GOLDEN BACKED WOODPECKER.	<i>Chrysocolaptes lucidus</i>	IB/UC

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FAMILY: - PITTIDAE [PITTAS]

157	88 204	INDIAN PITTA.	<i>Pitta brachyura.</i>	RB/C
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FAMILY: - ALAUDIDAE [LARKS]

158	137 322	BUSH LARK.	<i>Mirafra assamica.</i>	RB/UC
159	137 322	INDIAN BUSH LARK.	<i>Mirafra erythroptera.</i>	RB/UC
160	137 322	ASHY CROWNED SPARROW LARK.	<i>Eremopterix grisea.</i>	RB/UC
161	137 322	CRESTED LARK.	<i>Galerida cristata.</i>	RB/C
162	138 324	SKY LARK.	<i>Alauda arvensis.</i>	RB/UC
163	138 324	EASTERN SKY LARK.	<i>Alauda gulgula.</i>	RB/UC

FAMILY: - HIRUNDINIDAE [SWALLOWS AND MARTINS.]

164	115 268	PLAIN SAND MARTIN	<i>Riparia paludicola.</i>	RB/UC
165	115 268	SWALLOW.	<i>Hirundo rustica.</i>	WM/UC
166	115 268	WIRE-TAILED SWALLOW.	<i>Hirundo smithii.</i>	RB/UC
167	116 270	STRIATED or REDRUMPED SWALLOW.	<i>Hirundo daurica.</i>	/ R

FAMILY: - LANIIDAE [SHRIKES]

168	89 206	SOUTHERN GREY SHRIKE.	<i>Lanius meridionalis.</i>	RB/UC
169	89 206	BAY BACKED SHRIKE.	<i>Lanius vittatus.</i>	RB/UC
170	89 206	BLACKED SHRIKE OR RUFOUS (Longtailed).	<i>Lanius schach.</i>	IB/R

FAMILY: - ORIOLIDAE [ORIOLES]

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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171	92	214	EURASIAN GOLDEN ORIOLE.	<i>Oriolus oriolus.</i>	RB/UC
172	92	214	BLACK NAPED ORIOLE.	<i>Oriolus chinensis.</i>	RB/UC
173	92	214	BLACK HEADED ORIOLE.	<i>Oriolus xanthornus.</i>	RB/C

FAMILY: - DICRURIDAE [DRONGOS].

174	94	220	BLACK DRONGO.	<i>Dicrurus adsimilis.</i>	RB/C
175	94	220	ASHY DRONGO.	<i>Dicrurus leucophaeus.</i>	RB/C
176	94	220	WHITE-BELLIED DRONGO.	<i>Dicrurus caerulescens.</i>	RB/C

FAMILY: - STURNIDAE [STARLINGS AND MYNAS]

177	111	260	COMMON MYNA.	<i>Acridotheres tristis.</i>	RB/C
178	111	260	BANK MYNA.	<i>Acridotheres ginginianus.</i>	RB/C
179	111	260	JUNGLE MYNA.	<i>Acridotheres fuscus.</i>	RB/UC

FAMILY: - CORVIDAE [CROWS AND ALLIES]

180	90	210	INDAIN TREE PIE (RUFIOUS).	<i>Dendrocitta vagabunda</i>	RB/C
181	91	212	HOUSE CROW.	<i>Corvus splendens.</i>	RB/C
182	91	212	JUNGLE CROW.	<i>Corvus macrorhynchos.</i>	RB/C

FAMILY: - CAMPEPHAGIDAE [MINIVETS AND ALLIES]

183	93	216	SCARLET MINIVET.	<i>Pericrocotus flammeus.</i>	WM/UC
184	93	216	SMALL MINIVET	<i>Pericrocotus cinnamomeus.</i>	RB/C
185	89	206	BAY BACKED SHRIKE	<i>Lanius viltatus</i>	RB/C

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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186	89	206	LONG TAILED SHRIKE	<i>Lanius schach</i>	RB/C
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FAMILY: - IRENIDAE [LEAF BIRDS AND ALLIES]

187	95	222	IORA (INDIAN IORA)	<i>Aegithina tiphia.</i>	RB/UC
188	88	204	GOLDEN FRONTED LEAF BIRD.	<i>Chloropsis aurifrons.</i>	? / UC
189	88	204	ORANGE-BELLIED LEAF BIRD.	<i>Chloropsis hardwickii.</i>	? / UC
200	95	222	COMMON WOOD SHRIKE	<i>Tephrodornis pondicerianus</i>	

FAMILY: - PYCNONOTIDAE [BULBULS]

201	117	272	BLACK-HEADED YELLOW BULBUL.	<i>Pycnonotus melanicterus flaviventris.</i>	RB/UC
202	117	272	RED-WHISKERED BULBUL.	<i>Pycnonotus jocosus.</i>	RB/C
203	117	272	WHITE-CHEEKED BULBUL.	<i>Pycnonotus leucogenys.</i>	RB/UC
204	117	272	RED-VENTED BULBUL.	<i>Pycnonotus cafer.</i>	RB/C
205	118	276	GREY BULBUL (BLACK BULBUL).	<i>Hypsipetes madagascariensis.</i>	RB/C

FAMILY: - TIMALINAE [BABBLERS, LAUGHING-THRUSHES AND ALLIES]

206	133	312	STRIATED BABBLER.	<i>Turdoides earlei.</i>	IB/R
207	133	312	JUNGLE BABBLER (SEVEN SISTERS).	<i>Turdoides striatus.</i>	RB/C
208	128	300	WHITE THROATED LAUGHING-THRUSH.	<i>Garrulax albogularis.</i>	WM/R

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

FAMILY: - MUSCICAPINAE [FLYCATCHERS]

209	100 234	DARKSIDED FLYCATCHER.	<i>Muscicapa sibirica.</i>	WM/UC
210	101 236	RED-BREASTED FLY CATCHER	<i>Ficedula strophiatea parva.</i>	WM/C
211	234	RUFOUS GORGETED FLYCATCHER.	<i>Ficedula strophiatea.</i>	
212	101 236	SLATY BLUE FLY CATCHER.	<i>Ficedula tricolor</i>	WM/UC
213	103 240	BLUE-THROATED FLY CATCHER.	<i>Muscicapa rubeculoides.</i>	IB/UC
214	103 240	TICKELL'S BLUE FLY CATCHER	<i>Muscicapa tickelliae.</i>	RB/UC
215	93 216	YELLOW BELLIED FAN TAIL FLY CATCHER.	<i>Rhipidura hypoxantha.</i>	WM/UC
216	93 216	WHITE-BROWED FAN TAIL FLY CATCHER.	<i>Rhipidura aureola.</i>	RB/UC
217	93 216	WHITE-THROATED FANTAIL FLY CATCHER.	<i>Rhipidura albicollis.</i>	RB/UC

FAMILY: - PACHYCEPHALINAE

SUB-FAMILY: - SYLVIINAE [WARBLERS]

218	125 292	TAILOR BIRD	<i>Orthotomus sutorius.</i>	RB/C
219	123 288	STRIATED MARSH WARBLER.	<i>Megalurus palustris.</i>	RB/UC
220	125 292	BROWN LEAF WARBLER OR CHIFFCHAFF.	<i>Phylloscopus collybita</i>	WM/UC
221	126 294	DULL GREEN LEAF WARBLER.	<i>Phylloscopus trochiloides.</i>	WM/UC

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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SUB-FAMILY: - TURDINAE [THRUSHES, CHATS, ALLIES]

222	105 246	MAGPIE ROBIN.	<i>Copsychus saularis.</i>	RB/C
223	106 248	BLACK REDSTART.	<i>Phoenicurus ochruros</i>	WM/UC
224	250	WHITE CAPPED WATER RED START.	<i>Chaimarrornis leucocephalus</i>	RB/C
225	108 252	COLLARED BUSH CHAT. (STONE CHAT).	<i>Saxicola torquata.</i>	RB/C
226	108 252	BROWN ROCK CHAT.	<i>Cercomela fusca.</i>	RB/UC
227	108 252	WHITE TAILED STONE CHAT.	<i>Saxicola leucura.</i>	IB/UC
228	108 252	PIED BUSH CHAT.	<i>Saxicola caprata.</i>	RB/C
229	108 252	DARK-GREY BUSH CHAT.	<i>Saxicola ferrea.</i>	WM/UC

FAMILY: - PARIDAE [TITMICE]

230	113 264	GREAT TIT.	<i>Parus major.</i>	RB/C
231		BLACK LORED TIT	<i>Parus xanthogenys.</i>	RB/R

FAMILY: - MOTACILLIDAE [PIPITS & WAGTAILS]

232	142 334	YELLOW WAGTAIL.	<i>Motacilla flava.</i>	WM/C
233	142 334	YELLOW HEADED WAGTAIL/ CITRINE WAGTAIL	<i>Motacilla citreola.</i>	WM/C
234	142 334	GREY-WAGTAIL.	<i>Motacilla cinerea.</i>	WM/C
235	142 334	PIED WAGTAIL (WHITE WAGTAIL).	<i>Motacilla alba.</i>	WM/C

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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FAMILY: - NECTARINIIDAE [SUN BIRDS]

424	140 330	PURPLE SUN BIRD	<i>Nectarinia asiatica</i>	RB/C
425	140 330	CRIMSON SUNBIRD.	<i>Aethopyga siparaja</i>	RB/UC

FAMILY: - PLOCEIDAE [SPARROWS AND WEAVER BIRDS]

427	141 332	HOUSE SPARROW	<i>Passer domesticus</i>	RB/C
428	332	SPANISH SPARROW	<i>Passer his paniolensis</i>	WM
429	141 332	CHEST NUT-SHOULDERED PETRONIA.	<i>Petronia xanthocollis.</i>	RB/C
430	342	BAYA, WEAVER BIRDS.	<i>Ploceus philippinus.</i>	RB/C
431	342	BLACK THROATED WEAVER BIRD/BLACK BREASTED.	<i>Ploceus benghalensis.</i>	RB/UC
432	146 342	STREAKED WEAVER BIRD.	<i>Ploceus manyar.</i>	RB/UC
433	146 342	RED MUNIA OR AVADAVAT.	<i>Estrilda amandava</i> <i>/Amandava amandava.</i>	RB/C
434	147 344	SCALY-BREASTED MUNIA/ SPOTTED MUNIA.	<i>Lonchura punctulata</i>	RB/C

RB = RESIDENT BREEDER

VR = VERY RARE

AM= ALTITUDINAL MIGRANT

S = SPORADIC

PM = PALEARTIC MIGRANT

C= COMMON

IB = BREEDING IN INDIA

R = RARE

WM= WINTER MIGRANT

UC= UNCOMMON.

* Plate and Page Numbers as per Reference book:

Pocket guide to Birds of the Indian Subcontinent by Richard Grimmette, Carol Inskipp, and Tim Inskipp, 2000. Oxford University Press.

ANNEXURE-VI

WEATHER SUMMARY OF GURDASPUR FROM 2010 TO 2015

Year	Maximum Temperature (°C)	Minimum Temperature (°C)	Morning Relative Humidity (%)	Evening Relative Humidity (%)	Rainfall (mm)	Wind Speed (kmph)
2010	29.4	18.2	95	73	414.5	0.79
2011	27.9	17.0	90	63	1026.0	1.04
2012	28.3	16.2	86	59	931.5	1.31
2013	26.4	15.6	96	71	1374.5	1.11
2014	27.7	15.9	89	61	844.0	1.22
2015	28.2	16.9	86	56	1079.5	1.34

Submitted to :-

Range Forest Officer,

Wildlife Range,

Gurdaspur

Prepared by:-

Director,

Punjab Agriculture University

Regional Research Station, Gurdaspur

ANNEXURE-VII

PERFORMA OF CENSUS REPORT 2013-2018

S No	Bird's English Name	Status	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018
1	Little Grebe	R	10	41	24	90	64	24
2	Great Cormorant	Both	120	161	43	185	133	192
3	Little Cormorant	R	55	499	132	283	137	289
4	Oriental Darter	R	0	0	2	0	0	0
5	Little Egret	R	61	64	53	138	95	36
6	Great Egret	R	14	66	33	53	24	49
7	Intermediate Egret	R	9	29	27	27	38	32
8	Western Cattle Egret	R	20	127	81	95	190	177
9	Grey Heron	R	17	125	52	108	23	33
10	Purple Heron	R	26	89	56	115	44	48
11	Indian Pond Heron	R	7	25	59	83	41	40
12	Black Crowned Night Heron	R	0	0	6	0	17	0
13	Asian Openbill	M	13	9	0	21	18	4
14	Woolly Necked Stork	M	10	9	4	7	3	4
15	Painted Stork	R	1	0	5	3	0	6
16	Glossy Ibis	R	25	657	1618	387	477	1270
17	Black Headed Ibis	M	16	88	104	48	9	254
18	Eurasian Spoonbill	M	0	0	0	0	7	0
19	Indian Black Ibis	R	27	0	25	72	2	2
20	Bar Headed Goose	M	1039	571	174	786	225	1321
21	Greylag Goose	M	166	254	26	93	125	103
22	Ruddy Shelduck	M	1091	287	1175	1159	112	1667
23	Common Teal	M	465	2793	3670	3601	1871	1539
24	Garganey	M	3	34	0	0	2	8
25	Gadwall	M	676	1184	1121	3062	2061	1800

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
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26	Eurasian Wigeon	M	72	330	436	343	19	159
27	Northern Shoveler	M	691	1894	1270	2796	2664	1002
28	Northern Pintail	M	1496	2451	1001	2528	1612	466
29	Indian Spot billed Duck	M	55	399	360	304	238	50
30	Mallard	M	23	78	142	55	12	2
31	Tufted Duck	M	0	70	12	36	0	6
32	Ferruginous Duck	M	2	27	35	4	5	69
33	Common Pochard	M	40	96	277	31	1	29
34	Red crested Pochard	M	60	21	2	40	24	0
35	Black Winged Kite	R	0	0	4	2	46	0
36	Brahminy Kite	M	0	3	1	2	0	3
37	Black Kite	R	0	0	16	41	19	0
38	Shikra	R	0	0	2	8	4	0
39	Oriental Honey Buzzard	R	0	1	1	1	0	0
40	Lesser Spotted Eagle	R	0	0	2	2	0	0
41	Western Marsh Harrier	M	9	3	9	15	18	22
42	Common Kestrel	R	0	2	1	1	0	0
43	Grey Francolin	R	0	0	12	1	0	0
44	Black Francolin	R	0	0	4	4	23	0
45	Sarus Crane	M	2	6	2	2	8	4
46	Common Crane	M	496	810	528	511	377	596
47	White Brested Waterhen	R	27	33	151	263	363	49
48	Purple Swamphen	R	195	346	770	1157	1054	0
49	Common Moorhen	R	381	791	2499	2469	2970	2302
50	Eurasian Coot	Both	763	1741	2557	2465	2996	3521
51	Black Winged Stilt	Both	8	54	7	169	73	71
52	Pheasant tailed Jacana	R	1	17	20	24	22	18
53	Red Wattle Lapwing	R	90	0	61	188	103	118
54	Yellow Wattle Lapwing	R	0	0	6	1	1	0
55	White Tailed Lapwing	M	34	26	16	8	48	52

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

56	Northern Lapwing	M	60	56	59	11	4	126
57	Common Greenshank	M	4	1	2	4	6	4
58	Green Sandpiper	M	4	3	4	7	14	21
59	Wood Sandpiper	M	6	0	0	0	0	0
60	Common sandpiper	M	5	11	4	20	9	13
61	Marsh Sandpiper	M	0	1	1	5	17	2
62	Common Redshank	M	0	3	6	2	9	11
63	Ruff and Reeve	M	71	69	80	0	175	113
64	Common Snipe	M	3	2	7	10	13	13
65	Brown headed Gull	M	0	82	7	2	0	1
66	Common Black headed Gull	M	1	10	3	3	1	5
67	White throated Kingfisher	R	20	19	10	29	30	46
68	Lesser pied Kingfisher	R	0	4	3	4	6	2
69	Western Yellow Wagtail	M	60	50	0	117	188	51
70	Grey Wagtail	M	1	2	0	2	6	96
71	Citrine Wagtail	M	14	3	1200	123	355	0
72	White wagtail	M	3	24	0	46	189	17
73	White browed Wagtail	R	0	2	4	38	0	1
74	Common Starling	M	0	1790	402	414	1015	0
75	Palla's Gull	M	0	0	5	2	0	2
76	Jack snipe	R	0	20	5	1	0	0
77	Rudy Crake	M	0	0	1	0	0	0
78	Black necked Grebe	M	0	12	0	0	0	0
79	Common Ringed Plover	M	0	1	0	2	0	4
80	River Tern	M	2	18	0	0	2	18
81	Common Kingfisher	R	0	1	0	1	1	0
82	Blue throat	M	0	3	0	17	15	3
83	Comb Duck	M	1	0	0	0	0	0
82	Bonelis Hawk Eagle	M	0	1	0	0	0	0
83	Twany Eagle	R	0	0	0	4	0	0

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

84	Ziting Cisticola	R	0	0	0	5	0	0
85	Hen Harrier	M	0	0	0	2	0	0
86	Hume's Wabler	M	0	0	0	1	0	0
87	Barn Swallow	M	0	0	0	14	0	0
88	Straited Grassbird	M	0	0	0	2	11	2
89	Serpent Eagle		0	0	0	0	0	0
90	Chif Chaf	M	0	0	0	4	10	24
91	Ashy Prinia	R	0	0	0	6	0	0
92	Black Bittern	R	0	0	0	1	0	0
93	Plain Martin	R	0	0	0	68	0	0
95	Red rumped Swallow	R	0	0	0	434	0	46
96	Pergrine Falcon	R	0	0	0	1	2	0
97	Plain prinia	R	0	0	0	8	26	17
98	Indian Shag	R	0	0	0	0	4	0
99	Pallied Harrier	M	0	0	0	0	2	0
100	Rock Pigeon	R	0	0	0	0	164	0
101	Laughing Dove	R	0	0	0	0	2	0
102	Spotted Dove	R	0	0	0	0	2	0
103	Indian River Dove	R	0	0	0	0	14	0
104	Rose Ringed Parakeet	R	0	0	0	0	61	0
105	Greater Coucal	R	0	0	0	0	7	0
106	Little swift	R	0	0	0	0	45	0
107	Indian Roler	R	0	0	0	0	2	0
108	Common hoopoe	R	0	0	0	0	2	0
109	Wire Tailed swallow	M	0	0	0	0	16	134
110	Paddy Field Pipet	R	0	0	0	0	6	9
111	Red Vented Bulbul	R	0	0	0	0	2	0
112	Long Tailed Shrike	R	0	0	0	0	4	0
113	Pied Bushchat	R	0	0	0	0	4	0
114	Common Stone chat	R	0	0	0	0	11	0

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

115	Common babbler	R	0	0	0	0	8	0
116	Striated Babbler	R	0	0	0	0	21	0
117	Yellow Belied Preenia	R	0	0	0	0	9	7
118	Indian Biya Weaver	R	0	0	0	0	8	0
119	Streaked Weaver	R	0	0	0	0	2	0
120	Black Drongo	R	0	0	0	0	16	0
121	Asian Pied Storling	R	0	0	0	0	12	0
122	Bank Myna	R	0	0	0	0	3	0
123	Common Myna	R	0	0	0	0	65	0
124	Jungle Myna	R	0	0	0	0	14	0
125	House Crow	R	0	0	0	0	146	0
126	Water Rail	M	0	0	0	0	1	1
127	Grey headed Swamphen	M	0	0	0	0	0	899
128	Citrine Wagtail	M	0	0	0	0	0	391
129	Scaly-breasted Munia	R	0	0	0	0	0	20
130	Yellow- legged Gull	M	0	0	0	0	0	2
131	Western Osprey	M	0	0	0	0	0	1
132	Spotted Redshank	M	0	0	0	0	0	1
133	Unidentified	R	0	0	0	0	0	1500
			8571	18499	20497	25302	21181	21040

ANNEXURE-VIII

DETAILS OF LAND USE IN THE COMMUNITY RESERVE AREA

Sr.No	Village	Land & Ponds of wetland Keshopur	Balanced Area
01.	Matwan	Pachayat Total Area = 75 Acre Wetland Area = 50 Acre Fish farming Area = 20 Acre No of Ponds = 5 Total Income Per Year = 45 to 50,000	30 Acre
02.	Keshopur	Pachayat Total Area = 150 Acre Wetland Area = 135 Acre Agriculture Area = 15 + 65 Acre Fish farming Area = 60 Acre No of Ponds = 15 Total Income = 1 Lac Per Year	75 Acre
03.	Dalla	Pachayat Total Area = 159 Acre Wetland Area = 152 Acre Agriculture Area = 7 + 52 Acre Fish farming Area = 100 Acre No of Ponds = 14 Total Income Per Year = 1.5 Lac	59 Acre
04.	Magar Mudian	Pachayat Total Area = 300 Acre Wetland Area = 100 Acre Fish farming Area = 30 Acre No of Ponds = 4 Total Income = 1.4 Lac Per Year	70 Acre

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR

05.	Miani	Pachayat Total Area = 412 Acre	137 Acre
		Wetland Area = 300 Acre	
		Fish farming Area = 275 Acre	
		No of Ponds = 25	
		Total Income = 3 Lac Per Year	
		Total:	371 Acre

ANNEXURE-IX

PHOTOGRAPHS



Birds at Keshopur Chhumb Community Reserve

MANAGEMENT PLAN FOR KESHOPUR CHHUMB COMMUNITY RESERVE,
GURDASPUR



Meeting with Management Committee at KCCR



Plantation of Bohr (Ficus Benghalensis) at KCCR with Management Committee



Group Discussions Regarding SHG's at Village Matwa