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# Community Based Conservation for Protection of Avifauna Diversity at Keshopur, Punjab, India's First Community Reserve

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## Abstract

People's participation or community involvement in biodiversity conservation gained importance across the globe and since 1990's in India. Wetlands ecosystem conservation is one initiative towards achieving sustainability. One such wetland namely Keshopur Miani, in Gurdaspur district, Punjab, India remained unnoticed for long time despite its ecological fragility and importance. This wetland was unique as a landlocked fresh water ecosystem fed by undying Ravi river, interspersed with fertile agricultural lands and jointly owned by five villages as common property resource. Historically they were even duck shooting grounds during erstwhile British period but presently under fish farming and agriculture due to fragmentation of habitat. But these wetlands attract large number of migratory birds including Sarus and common cranes during winter migration. The area due to its ecological significance had been attempted to be protected under Indian Wildlife Protection Act, 1972. Traditional attempts of the department have not yielded any positive outcome as the land ownership remained as village common lands. However, with the advent in amendments in Indian Wildlife Protection Act, this area was attempted to be declared as unique community reserve under the provisions of amended act. In this category, both the objectives of not alienating the ownership and effective protection of avifauna was achieved by involving local villagers and their effective participation in managing the protected area. Thus Keshopur Miani Chhamb, India's First ever Community Reserve was declared in 2007 and now a Ramsar site. This paper discusses the process of formation, management, strategies of stakeholder engagement, implementation and gainful employment in through people's participation. Later Kathlour – Kushlian Wildlife sanctuary in Government protected forest and Ranjit Sagar Dam Conservation Reserve were declared adding more protection to the significant biodiversity of the district.

*Keywords: People participation, Ecosystem, Conservation, Wetlands, Chhamb, Keshopur, Community Reserve, India, Punjab, Habitat Conservation, Wildlife Protection*

## Introduction, scope and main objectives

Wetlands in India cover an area of 58.2 million hectares (Prasad et al. 2002). In Wildlife Institute of India's survey reveals that wetlands are disappearing at a rate of 2% to 3% every year. Unless all stakeholders are equally involved in conserving any natural ecosystem, we may not be able to achieve the major objectives of protection, conservation and sustainability on a long term.

Alienating the local population to achieve conservation has opened floodgates to various other issues of poaching from outsiders and infiltration of land grabbers, encroachment, illicit felling etc in many areas. The conservation focussed on species specific approaches especially flagship and keystone species have achieved the desired results in terms of increase in area under protected area network in India. India being biodiversity hotspot requires adequate protection not only from burgeoning human population but also from cattle in and around protected areas. The concept of core areas where no go zones were declared have pristine richness in terms of natural biodiversity and the concept of eco sensitive zones around the protected areas yielded safe buffer for the wildlife. All these traditional and core approaches yielded tremendous success in conserving and protecting the major species, however there had been diversions and dilutions due to the pressures in the name of development. Few successful experiments of Joint Forest Management tried in West Bengal resulted in paradigm shift in forest policy involving and encouraging the involvement of local population in forest protection, conservation and management. This holistic approach was extended to protected areas by implementing eco development activities around the tourism and buffer zones. These activities resulted to gain confidence of the local people in getting assistance in real time protection though various modern scientific tools are equally employed.

Indian Wildlife Protection Act was enacted originally in the year 1972 with only two categories of protected areas viz. Wildlife Sanctuary and National Park. Species specific conservation models and schemes such as Project Tiger, Elephant, Rhino etc were created to achieve the conservation objectives. Later due to UNSCO, Biosphere reserves were incorporated. The above legally notified areas and schemes were primarily focussed on wildlife as priority, but incidentally focussed on alienating the people away from the core zones of wildlife habitats. This resulted in enormous delay in effective final notification, resettlement of people outside the core areas with huge cost involved and their gainful employment elsewhere. The incidences of man animal conflicts too increased resulting in more conflict with the forest department in the fringe areas.

Thus the overall objectives of involvement of people in wildlife conservation was conceived by inclusion of two more categories of protected areas viz. Conservation reserve (to act as buffer zone for movement corridor of wildlife in which the land is exclusively owned by government but people are permitted to a limited activities) and Community reserve (where land ownership is not with government but with local community and will remain with them forever without government acquiring it, but to give adequate protection to flora and fauna). The objectives behind these amendments in 2006 are to enhance the scope of wildlife protection outside the protected area network and to involve the communities.

## Methodology/approach

The area is located at 32°05′ 16.3″ N and 75°24′ 24.2″ E at an altitude of 245 msl in Gurdaspur district, Punjab, India. The wetlands form an important migratory waterfowl habitat and corridor of migration, surrounded by fields, being fed by Ravi River. They were once duck shooting grounds of maharajas and British, mentioned in 1914 District Gazetteers (Anon 1914). Several species have become extinct too. As many as 33 species of migratory birds described, most of them are not seen any more today or very rare occurrences. The area once spread in few 1000 ha is now reduced to 850 acres (3.4 sq km, the smallest community reserve too) due to draining and converting into agricultural fields and fish ponds. The present wetland (Fig 1 and 2) is owned by five village

Panchayats (Common property resource of village) viz. Keshopur, Dalla, Magarmudian, Miani and Matwa. Bird diversity at Keshopur community reserve and Magarmudian is enormous. These four small wetlands host about 50 species of migratory birds and about 50000 migratory birds that flock the area during winter migratory season. A total of 233 species of birds belonging to 50 families were recorded from four small natural wetlands around Gurdaspur within 10 km range. Out of 233 recorded species, 72 are resident, 158 are migratory and 3 having sporadic occurrence. Highest number of birds was recorded in the month of January and lowest number was recorded in the month of June (Bal and Dua 2010). Most of the wetland ecosystem has been leased by the Panchayats for agriculture or fisheries to villagers and the line departments helped them to convert them into productive agriculture through drainage but resulted in the plunder of ecosystem.

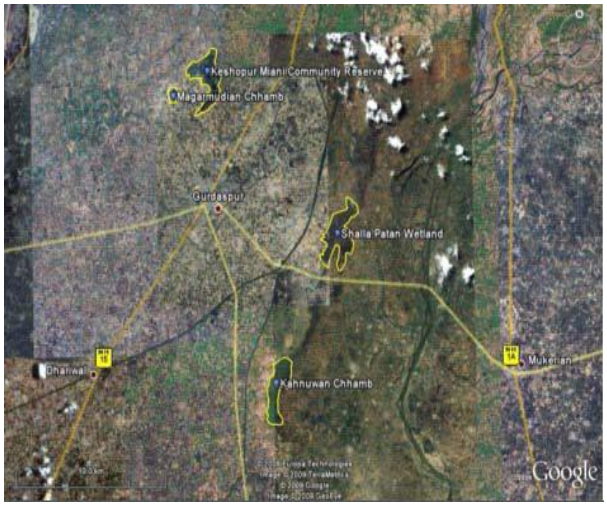


Fig 1. Study area Source: Google Maps)

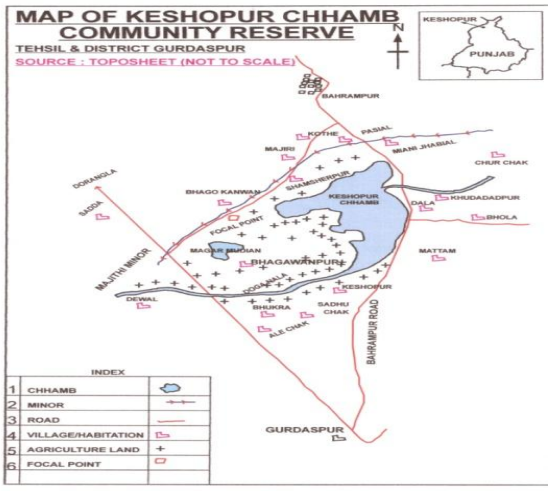


Fig 2 – Map of the area (Not to scale)

Punjab Forest Department tried and attempted its traditional approach by moving proposal way back in 1998-99 to declare it as Wildlife sanctuary and even few conservationists too raised occasional voice for its conservation. But the hitch was that the land belonged to common village property and not exclusively owned by Government thus resulted in impediment to be declared as sanctuary. People could never be convinced for its declaration as they feared that the land would be taken away hence failed in its attempts in the past. The drainage department continued to create more drains for agricultural purposes thus there was absolutely lack of coordination amongst line departments to achieve the long term sustainability and conservation objectives.

About 30,000 important migratory birds with 58 species from America, South Africa, Siberia, Russia and Pakistan along with resident species showcase their charming presence to the world at the reserve. According to a census, birds like Wigeon, Dub Chick, Black Ibis, Gadwall, Common Teal, Pintail and Northern Shoveler flock the area in thousands. But Grey lag Goose, Common Pochard, Spot billed Duck, White Wagtail, Yellow Wagtail, Grey Wagtail, Brahminy Shelduck or Ruddy, Imperial eagle, Spotted duck, Sarus crane appearances are lesser than as usual. The entire community reserve is on two marshes owned by five village Panchayats, the major one being Miani (400 acres), Dalla (152 acres), Keshopur (136 acres) and Matwa (51 acres) as a contiguous block and Magarmudian (111 acres) as a separate patch. Currently 83% of the total area in the community reserve is under active human use in the form of fish ponds, cultivation of lotus and Trapa through long term lease mechanisms. A total of 146 species of birds belonging to 38 families were recorded from Keshopur wetland. Out of 146 recorded species, 83 species are resident breeders, 5 species are indigenous and 58 species are migratory. Highest number of birds was recorded in the month of January and lowest number was recorded in the month of June (Kamal Mehta 2014).

## Process of declaration

*(Image: Stakeholder consultation in progress)*

The forest department created separate wildlife division in Gurdaspur District of Punjab in March 2006 during its reorganization. Though teemed with bountiful of wildlife in the district and with sensitive state and international borders of the district, there were challenges to face as there were no designated legally notified protected areas in the district. Thus the work started from the scratch to convince local people for conservation of wetlands through participatory rural appraisal techniques and stakeholder consultation, engagement and involving them in conceiving the protected areas including the future management of the areas. Series of meetings with all stakeholders were conducted in the villages to tell benefits of conserving the ecosystem and their services (Rajasekar and Yogalakshmi 2007).

*(Image: Awareness creation in school)*

Schools and colleges of the district were continuously engaged in creating awareness amongst the children, peers and parents. The provision of Section 36 C regarding Community Reserve of Amended Wildlife Protection Act, 2006 was explained in detail for convincing fear of losing ownership or acquisition in such declaration. First time, a scientific bird census was conducted by Bombay Natural History Society and enlisted the waterfowl status and its diversity. Through the help of local administration and volunteers and pressure from conservationists coupled with peers in the forest department, the Keshopur Miani Chhamb was declared as India's first ever community reserve in June 2007 by the Government of Punjab vide Notification No: 34 /13/ 2007 / Ft-V / 6133 Chandigarh, Dated the 25.6.2007.

The village panchayats (local governing authority) have agreed in writing for protecting, declaring it as Community Reserve after getting convinced about the provisions with stakes of existing activities will be allowed, no further extension or conversion of wetland towards fisheries / agriculture will be permitted. Most importantly, the land remain in their ownership, and they have been made partners in development, management committee etc. They were also given to understand the ecotourism potential of the area if developed on scientific lines and the scope of local employment for the youth. Bird guides were developed and a check list of birds of the area was jointly published by the forest department and Punjab State Council of Science & Technology (Rajasekar and Neelima Gerath 2008) and the local youth were trained as bird guides.

Important Resident birds recorded in the area (Richard Grimmett et al. 2010) are Sarus crane, Indian Moorhen, Little and Large cormorant, Common poachard, 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, Egyptian Vulture & White Rumped vulture etc.



*(Images: Sarus cranes with common crane, Afforestation at a school, White rumped vulture: L to R)*

## Results

Stakeholder engagement through true participation of all stakeholders of the ecosystem and active involvement of people at all stages of decision making was the key in ensuring the success of the declaration. The people were taken into confidence in every step by explaining benefits in their local language, potential employment generation, ecotourism etc. The participatory approach skills came handy for the enforcement of law without requiring any coercion. The preliminary management plan was also prepared in consultation with the objectives to conserve and improve the fragile and highly threatened wetland ecosystem as migratory corridor for endangered birds and other waterfowl species; to maintain the integrity of the ecosystem and arrest further degradation of the wetland ecosystem by providing adequate protection, strengthening existing infrastructure; to attain a minimum viable population of atleast 500 Sarus cranes and 100 White-rumped Vultures as flagship species within the plan period and maintain their population trends in future; 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; to promote the ecotourism, create conservation awareness in and around the community reserve area and to facilitate the research, training and capacity building of communities and staff and strengthening social engineering skills. Most of the above objectives are being achieved over time in the last decade.

In the management plan, there were proposals for habitat restoration and wildlife protection, habitat improvement viz. desiltation of wetland, installation of barrages for maintaining water level, water hyacinth and other weed control and removal, bank stabilization measures, plantation of indigenous species, management of reeds, introduction of native aquatic plant species; employment generation and infrastructure development - construction of nature interpretation centre, construction of guard huts, establishing anti poaching camps, construction of watchtowers, bird watching hideouts, check posts, improving communication & transportation; waterfowl census, research and training (capacity building), development of a GIS based resource survey, present land use, pollution monitoring and maps, research on inventorying and assessment of habitats and species richness monitoring and assessment of population trends of migratory birds; eco development activities through eco development committees and implementation of entry point activities through their active participation, preparation of micro plans and promotion of income generating activities through people's participation (Rajasekar 2007). These proposals have been accepted and visible improvement if terms of infrastructure, socio economic status and biodiversity are evident at the ground.

The legislative provisions for protection under Wildlife Protection Act, 2002 (amended 2006) section 36 D – constitution of the Community Reserve Management Committee, which shall be the authority responsible for conserving, maintaining and managing the community reserve are effectively followed. As the Keshopur Chhamb Community Reserve falls in five villages' Panchayat lands, all the villages were represented with one nominee each and the Range officer from Forest and Wildlife Department shall function as its Member Secretary. After the issue of notification under sub-section (1) of Section 36 C, no change in the land use pattern can 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, thus halting further degradation of the wetland. The sections such as 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 are applicable in the community reserve however high doses of pesticides and fertilizers in the nearby fields and the effect of bio magnification induced fast invasion of water hyacinth, typha and other alien species are threat to the ecosystem. An analysis of water samples found values of water quality parameters were found to be optimum. The pH showed wetland water is alkaline throughout the year. Conductivity revealed positive linear correlation with TDS while both conductivity and TDS were found correlated significantly with other parameters. Turbidity showed significant correlation with $HCO^3$ and total alkalinity. The alkalinity is mainly caused due to carbonate, bicarbonate and hydroxyl ions where as hardness is due to Ca and Mg content in the water. The nutrient parameters also revealed seasonal variation which is linked to the hydrological cycle. There were sharp changes observed in the seasonality of nutrient content in Keshopur wetland water as recorded after analyses (Syed 2016). Continuous awareness creation alone could change the people's mindset and conserve the wetland from extinction and furthering objectives of biodiversity conservation in the area.

## Discussion

With a typical sub-tropical climate of hot summers and cold winters, Punjab state has three physiographic regions namely, Mountainous Himalayas, Sub-Mountainous Himalayas and eastern and western Alluvial Plains. Punjab is known for a rich biological diversity in terms of its flora and fauna that is under threat due to the loss of habitat owing to urbanization and destructive harvesting of the species. To conserve the natural biodiversity in the state, a network of protected areas has been established for the conservation of its wild flora and fauna in the state (Kirandeep, 2018). People's participation in wildlife conservation was not new to Punjab state as the Bishnoi community adjoining Rajasthan and Haryana state borders along with Punjab always adored the blackbuck as their own animal along with blue bull, thus paving a way to declare large tracts as wildlife sanctuary in 1988. This is located at a distance of 15 Km from the city of Abohar in the Fazilka district, it is a unique open sanctuary spread over 186.5 sq kms of area mostly private fields. The state presently boasts 13 wildlife sanctuaries, 4 conservation reserves and 4 community reserves, a notable achievement indeed, given the pressure on land for agriculture in the state. Similarly the state is unique in declaring all strip forests such as plantations along railways, roads, canals, drains as protected forests through a single notification, thus having increased forest and tree cover more outside traditional forest areas. Another unique concept of private forest areas along with lower shivalik hills in bordering districts of Rupnagar, Hoshiarpur, Gurdaspur are managed by the forest department by virtue of Land Preservation Act, 1900, where free ranging wildlife are found. Thus protection of wildlife outside the traditional forest areas is not new to the state, however involving

the local population in the management of the wildlife habitat is a novel concept achieved through the declaration of community reserve in their common lands, thus became a shining example of India's first community reserve paving way to many states replicating the effort.

## Conclusion

The entire Gurdaspur district boasts with huge ecotourism potential in the wetlands, and nearby areas. The reserve promises various opportunities for bird watching and photography during winters. Mud pathways, Bird watchtowers and boardwalk are being planned with camouflaged sighting points for eco tourists. In view of fishponds existing already in the area, there is a possibility of angling facilities for tourists and improved income opportunities for the local people through promotion of ecotourism as well as countryside tourism. Thus the department of tourism in the Government conceived ecotourism plans for the entire state and incidentally included this area thus paving the way for huge potential. The wetland is included in the International importance as a Ramsar site in 2019 (*Fig 3 – Certificate of Ramsar site*).


Shalla Pattan is located on the left side of Gurdaspur Mukerian Road (near Tibri Cantt). It is situated at a distance of around 7 km from right bank of river Beas. The area receives a host of migratory species including resident breeding sarus crane. Kathlour Kushlian wildlife sanctuary, Pathankot is another protected area notified in June 2007 and is adjoining the Reserve in close vicinity and is first sanctuary in Gurdaspur District, Punjab. It is strategically located from point of ecotourism along the new alignment of bye pass of Amritsar–Jammu Highway. It is a riverian ecosystem with good population of different ungulates and deer species. Recently breeding White-rumped vulture (*Gyps bengalensis*) colonies numbering (roughly 100-150 birds) in about 10 colonies with few nests have also been spotted in close vicinity. The habitat provides high ecotourism potential on account of its accessibility as well as ecological variability in terms of dense (closed canopy) forests, interspersed with open grasslands of *Saccharum* and water bodies as the area lies on the banks of bed of Ravi river. Dhar, Dunera and Ranjit sagar dam areas in the district also boasts hilly tracts along the Himachal state border on the Pathankot – Dalhousie road. These are excellent sites that can be explored for the nature based ecotourism. The forests comprises mainly chir *(Pinus roxburghii)* and other mixed vegetation. These areas offer lot of adventurous camping sites, trekking routes and other activities. Ranjit sagar dam to an extent of 18.65 sq.km in Punjab has been notified as Conservation reserve too. Today the district proudly boasts three protected areas from none all through people's real participation in biodiversity conservation.

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