Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

World Wide Fund for Nature- India,
Seceretariat, 172-B, Lodi Estate
New Delhi- 110 003
Website: www.wwfindia.org
Tel: 91(11)4616532, 4691760-62

With Inputs From:

Mr. Mohammad Shafi Bacha
Jeelanabad (Sector – G. I.) Peerbagh
Srinagar, Kashmir – Tel. No.: 431804

Department of Wildlife Protection,
Jammu & Kashmir Government,
Tourist Reception Centre, Srinagar.
Tel./Fax. No.: 452469

2. Date this sheet was completed/updated:
January 2004

3. Country:
INDIA

3. **4. Name of the Ramsar site:**
HOKERA WETLAND

5. Map of site included:
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps.

a) hard copy (required for inclusion of site in the Ramsar List): *yes* √ -or- *no* □

b) digital (electronic) format (optional): *yes* □ -or- *no* □

6. Geographical coordinates (latitude/longitude):
$34^0$0'-$34^0$10'N and $74^0$40'-$74^0$45'E

7. General location:
Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Hokera with snow draped Pir Panchal looming in the back drop is located in the centre of the valley about 10 km to the west of Srinagar and is easily approachable by the National Highway 1-A leading to Baramulla – Uri sector under the state government of Jammu and Kashmir.

8. Elevation: (average and/or max. & min.)
1584 meters asl.

9. Area: (in hectares)
1375 ha

10. Overview:
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Hokera a natural permanent wetland flanking the Jhelum basin, which runs across the valley is now the only viable wetland site among the large remaining reed beds of Kashmir, located on the flyway route of the wintering migrants (geese, ducks, pochards & rails) coming from Siberia, China, Central Asia, North Europe and other countries under Asian migratory flyways. It is also an important source of food, spawning ground and nursery for fishes, besides offering feeding and breeding ground to a variety of water birds both resident and summer migrants from the Indian sub-continent. The sustainable exploitation of high biological production like fish, fodder and fuel is significant but a tangible value of the wetland. The other intangible benefits viz. biodiversity conservation, pollution abatement, trapping sediments & nutrients, mitigating floods through water storage, ground water recharging, underground and surface water supply, climatic stability, control insect pests on farms, scientific research, awareness, recreation etc. are equally of great significance. The prevailing multi-pronged pressures both natural and human-made have put the status of wetland ecosystem in North West Himalayan Biogeographic Province of Kashmir to a precarious position for which Hokera is categorised as a critical wetland.

11. Ramsar Criteria:
Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

12. Justification for the application of each Criterion listed in 11. above:
Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 2: The wetland supports high number of waterfowls including IUCN Red listed (2004), endangered (*Aythya nyroca*)white eyed pochard.

Criterion 4: Hokera's ecological boundaries are not limited to its satellite wet sites, which in winter provide food niches to the birds during night hours and some plant grooves and offer conducive breeding colony sites during summer. It also extends to the plains of Indian sub-continent used as a stop over to thousands of migratory birds for their inward and outward migration during winter, apart from offering suitable breeding ground to the summer migrants coming from the Indian sub-continent. The limits of ecological boundaries further extend to Siberia, China, central Asia & north Europe in a manner providing sufficient food and adequate cover against hostile climatic conditions to wintering migrants.

Criterion 5: Hokera is a depository of rich diversity of birds both resident and non-resident (summer / Winter Migrants). So far 68 avian species have been inventorised from the area. This Wetland offers adequate, suitable variety of diet to inhabiting herbivores, insectivores, fish eaters, omnivores, carnivores and scavengers.

Regular periodic waterfowl population monitoring since 1991 – 1992 in Hokera has shown a considerable increase in peak population. In 2001 – 2002, the peak of over 373,000 birds has been

registered. The observation recognises that the valley supports the optimum population for these wintering migrants.

Several bird species like Large Egret (*Ardea alba)*, Great Crested Grebe *(Podiceps cristatus)*, Little Cormorant (*Phalacrocorax niger)*, Large Cormorant (*Phalacrocorax carbo)*, Common Shelduck (*Tadorna tadorna*), White-Eyed Pochard (*Aythya nyroca*) and Tufted Duck (*Aythya fuligula)* that abandoned this wetland, reappeared after a long pause of over two decades.

Criterion 8: The wetlands in the valley adjoin the Jhelum basin which runs across the valley fed directly or indirectly to this river system. These sites are temporarily inundated. The sites are extensively used as feeding and spawning grounds and nurseries by the fishes; whereas open water supports in growth. During spring fishes migrate up from Jhelum to Hokera, as it supports essential ecological processes for the fish stock (*carps*). But the fluctuating water table in the river system often fragments river Jhelum from the breeding ground; therefore Hokera together with surrounding wetlands harbors adult fish.

---

13. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):
Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region: North West Himalayan Biogeographic Province of Kashmir

b) biogeographic regionalisation scheme (include reference citation): Not available.

---

14. Physical features of the site:
Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Hokera is a permanent natural wetland, which has almost lost its embedded springs due to heavy influx of silt load and nutrients from Doodganga catchment. It absolutely banks upon the water from Doodganga that enters into the wetland in southeast. When the water from Pir Panchal Forests through Sukhnag Nalla enters into the lake in southwest and directly discharges into the exit gate (Flood Spill Channel) near Sozeth village. The water greatly fluctuates through the seasons of the year in response to the main discharge from the Flood Spill Channel. The maximum depth of water ranges between 1.0 to 1.5 m. The lake is connected with the Jhelum river by a small channel, which leaves the reserve in northwest.

---

15. Physical features of the catchment area:
Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The lake supports a small fishery and a reed-cutting industry, and provides a source of water for irrigation. The underlying soils are of a silty-clayey-loam type.

---

16. Hydrological values:
Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

The water which enters the wetland apart from silt from the catchment area brings nutrients from surrounding agricultural fields. The complex floral composition of the lake traps the sediments and nutrients, besides acting as flood absorption basin through water storage. Thus, helping city of Srinagar and surrounding fields from floods. The diverse inhabiting fauna also control insect pests on the neighbouring farms.

---

17. Wetland Types

a) presence:
Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:
List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.
U, W, Xf, Xp, Y, Zk(b)

---

18. General ecological features:
Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The project area supports a definite type of vegetation ranging from submerged, attached floating, free floating and emerging aquatic vegetation-grasses, herbs, reeds and sages.

Following typical marshy vegetation complexes are exhibited controlled by water depth, water chemistry etc. In southern segment and marginal land of shallow water ditches, dominant plants are *Typha angustata, T. laxmanii, Phragmites comminis, Eleocharis palustris, Scripus sp., Butomus umbellatus, Frimbistylis squaros.* Other comon species include *Lemna gibba, L.minor, L.trisulea, Spirodella polyrhiza, Myriophyllum verticillatum, M.spicatum, Alisma plantigoaquatica* and *Sagittaria sagitifolia.* When these shallow ditches dry up, the vegetation is replaced by ephemeral species like *Batrachium trichophyllum* etc.

In the region of open water and deeper parts, thick growth of *Trapa natans, Butomus umbellatus, Hydrilla verticillata, Sium latijygam, Sagittaria sagitifolia, Alisma sp. Nymphoides peltatum, N.stella, N.candida, Sparganium ramosum, Limosella aquatica, Potamogeton sp.* and *polygonum sp.* are commonly found in northern and northeast effective lake area.

In the north-western part large numbers of floating gardens remain invariable inundated and are colonised by hydrophytes like *Myriophyllum specatum* and *Hydrilla verticillata* during spring months. When in summer the water level recedes, the vegetation of these inlands is replaced by *Mentha aquatica, M.longifolia, M. sylvestris, Epilobium parviflorum, Myosotis caespitosa, Ranuculus muricatus, Lythnum salicaria, Rorippa sylvestris, Rumex sp.* and *R. patientia.* During late July *Alisma, Sagittaria, Buttomus, Sparganium, Scripus, Eleocharis* and *Carex* genera also come into association.

Ephemeral channels which dry up during autumn intercept the floating gardens harbour floation vegetation of *Lamna gibba, L. minor, L. trisulea, Spirodella polyrhiza, Nymphoides peltatum, Hydrilla verticillata,* while the rooted forms include *Rannunculus sceleratus, Rumex sp.* etc.

The area under excessive silt deposition which have changed into permanent land mass especially in the southern segment, northeast and northwest pockets of the northern segment support luxuriant semi-aquatic vegetation of *Najas sp., Echinochloa crusgalil, Bidens biternata, Rumex hastatus, Eleocharis palustris, Polygonum barbatum, P.hydropiper, Mentha longifolia, M. sylvestris* etc. a thick belt of willow (*Salix alba*) extend along the periphery of the wetland especially on the west.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Drastic decline in wetland ecosystem due to heavy influx of silt and nutrients coupled with weed infestation in the valley, has put the status of several floral species viz, *Trapa natas, Typha angustata, Phragmitis communis, Lemna minor, L. gibba Nyphoides peltatum, Neleumbo nucifera* etc. to a precarious position. Presence of these species on marshy beds provide an extensive over wintering resort, excellent cover and safe roosting and feeding ground to a large number of geese, ducks, pochards, teals and rails which just at the onset of autumn, migrate from Palaearctic breeding grounds, as well as breeding and roosting grounds for a variety of other birds in summer both migratory and resident. These floral species are unique to this system in view of the aforesaid importance and legal protection at international level will certainly help to improve their status in a long way.

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Apart from supporting the resident birds and the summer migrants from Indian sub-continent, the wetland of Hokera is of international importance for attracting large flocks of wintering migrants coming all along from Palaeractic breeding grounds.

21. Social and cultural values:

e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Just in the out skirts of Srinagar city on the way to world famous tourist resort Gulmarg, Hokera is catching the attention of tourists both domestic and foreign. Being in close proximity of summer capital of the Jammu & Kashmir State, it is equally a focus of attraction for scientific research especially in the field of hydrobiology and avifauna. To develop understanding and care for about this world wide neglected wetland ecosystem, coupled with its tangible and intangible benefits/ values therefrom, eco / nature camps of educated youth and people surrounding protected area are being organised by the department. Similarly the agricultural fields surrounding the wetland get an easy supply of ground and surface water, when the inhibiting fauna control biologically the pests on the forms. Hokera is economically invaluable being source of lucrative harvests of fish, fodder, fuel, timber material to the wicker work and mats (*Typha angustata* and *Sparganium ramosum*) in addition to water nuts.

Exploitation of biological resources are in operation in the area since long, the same has been regulated under close supervision of the field functionaries since 1995 in a manner that it is consistent with the maintenance of natural wetland processes and ecological characters. But water harvesting, which is in operation since 1999 in view of prevailing climatic conditions in the valley, is a non-sustainable exploitation. But improvement in weather conditions and with the installation of proposed water regulation system in the area will not have the detrimental ecological change.

22. Land tenure/ownership:

(a) within the Ramsar site: Jammu & Kashmir Government, Srinagar.

(b) in the surrounding area: Private ownership

23. Current land (including water) use:
(a) within the Ramsar site:
Fish farming and fishing, water used in harvesting.

(b) in the surroundings/catchment:
Paddy cultivation, fodder and fuel wood collection,

---

24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

(a) within the Ramsar site:
The insecticides, herbicides and fertilizers used in the surrounding paddy fields percolate into the wetland, thereby adding nutrients, which in turn deplete the oxygen content from the water accelerates the pace of succession.

During floods Doodh Ganga flood channel and Sukhnag stream brings silt with them which results in reduction of depth of the wetland and because of this siltation area of Hokera wetland has reduced from 14 km to less than 7 km. The decrease in the depth has become a problem for some migratory birds like pochard because this bird needs at least 6 feet deep water for diving.

The newly constructed colony in-front of Hokera wetland use Hokersar as dustbin and throw all their garbage in Hokersar.

(b) in the surrounding area:
A potential hazard due to other forms of land use practices around the site following the rapid growth of city limits along the southern boundary is an eventual threat, which demands immediate attention of the authorities.

---

25. Conservation measures taken:
List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

The amendment to the Jammu & Kashmir Wildlife (Protection) act 1978 is under active consideration of the State Government, so the legal status of the wetlands will be automatically strengthen under its revised provisions.

Strengthening of protection and water optimisation operations has greatly helped the authorities for achieving reappearance of migratory waterfowls listed in Seciton 12. The sustainable exploitation of wetland resources in addition to the above management practices have also offered conducive habitat to the wintering migrants thus insinuated them to prolong their outward migration, as is evident from the photographs attached with the report. Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir started a project there and working in collaboration with Department of Wildlife Protection.

---

26. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

Hokera is presently enjoying a legal status of a protected area, under the administrative control of the Department of Wildlife Protection and a Development Plan for the period of 2002–03 to 2007–08 is under preparation and implementation of management inputs deviced therein will also be expected.

---

27. Current scientific research and facilities:
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

The department is regularly monitoring the population trends of wintering birds in time and space. The SKUAST (Sher-e-Kashmir University of Agricultural Sciences & Technology of Kashmir) has launched a project which is analysing "Anthroprogenic pressures on Hokersar wetland". The intensive research is being carried out by University of Kashmir in the area on the following topics:

1. 'Ecology & structure communities of water insects in three lakes (Hokersar, Anchar and Dal) and a pond (Indra nagar)".
2. Plankton dynamics and hydro chemistry of Hokera wetland.

As the impetus of research activities is gaining the momentum, required facilities for the same will be built up in the area during the aforesaid plan period.

---

28. Current conservation education:
e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The existing Tipphon shed is presently put to use by visitors, however, for its extension / enrichment together with construction of watch towers at strategic places necessary provision in the plan will be reflected to bring it to such a standard so that visitors and nature club students are highly benefited.

---

29. Current recreation and tourism:
State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

At present there is no such facility available for tourism in the area but the substantial pressure for recreation is mounting with the progressive improvement in prevailing situation. As such necessary provision in the plan to develop infrastructural facilities to cater the tourism is being projected for the purpose.

---

30. Jurisdiction:
Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Hokera wetland falls under the jurisdiction of the State of Jammu & Kashmir and its administrative and technical control rests with the Department of Wildlife Protection, Jammu & Kashmir Government, Srinagar.

---

31. Management authority:
Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The Department of Wildlife Protection, Jammu & Kashmir Government, Tourist Reception Centre Srinagar, 190001, is managing the wetland.

32. Bibliographical references:

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

Ali, S. and Ripley, S.D. 1968. Hand book of the Birds of Indian & Pakistan together with those of Nepal, Sikkim, Bhutan and Ceylon- Volume,1.

Ali, S. and Ripley, S.D. 1983. A pictoral guide to the Birds of Indian Subcontinent BNHS Bombay.

Anon 1989. Environmental Impact Assessment Gas Turbine Zainakote Eco. Ser. D.E.E./11/89-90, June, 1989. Deptt. of Ecology and Environment.

Bacha, M.S. 1991. Status report chapters "Fauna, Research activities and Future Research Programmes".

Bacha, M.S. 1992. Waterfowl census in Kashmir Wetlands (Feb-April, 1992).

Bacha, M.S. 1996. Waterfowl census in Kashmir Wetlands (Sept.92-April, 93).

Bacha, M.S. 1996. Waterfowl census in Kashmir Wetlands (January, 1994-April, 1994).

Fleming, SR, R.L., Fleming, Jr. R.L., Bangdel, L.S. 1976. Birds of Nepal, Isted, Arum K. Mehta and Vakil and Son's 1976.

Hussain, S. and Silva, D. 1987. Waterfowl indicator, B.N.H.S. Bombay Indian revised ed., 1987.
Jamwal, K.S. 1990. Wetland Kashmir, Sanctuary Mag., 1991.

Ripley, S.D. 1982. A synopsis of Birds of India and Pakistan together with those of Nepal, Bhutan, Bangladesh and Sri Lanka (second edition).

Shah, G.M., Qadri, M.Y. and Inayat Ullah, M. 1980. Food of Greylag Goose, *Anser anser*.J. Ind. Inst. Sci., 64(C), 1983.

Zutshi, D.P., Subla, B.A., Khan, M.A. and Wangnoo, A. 1980. Comperative limnology of nine lakes of Jammu and Kashmir Himalayas- Hydrobiologia 72 P.P. 101-112.