

Ramsar Information Sheet

Published on 31 October 2022

India Hirakud Reservoir



Designation date 12 October 2021 Site number 2494 Coordinates 21°36'38"N 83°45'59"E Area 65 400,00 ha

https://rsis.ramsar.org/ris/2494 Created by RSIS V.1.6 on - 31 October 2022

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

Hirakud Reservoir, the largest earthen dam in Odisha, constructed across river Mahanadi at Sambalpur, started operating in 1957. The gradient of habitats ranging from riverine to lacustrine, while moving towards the dam, enables the reservoir to support a range of floral and faunal species, including several of high conservation significance. Out of the known 54 species of fish from the reservoir, one has been classed as being endangered, six near threatened and 21 fish species of economic importance. Fisheries presently yield a catch of around 480 MT of fish annually and is the mainstay of livelihoods of 7,000 fisher households. Similarly, over 130 bird species have been recorded at this site, out of which 20 species are of high conservation significance. Hitakud reservoir has been included in the list of prioritized inland wetlands of Odisha (Prasad et al. 2004), and further in the list of Important Bird Areas (IBAs) of the state of Odisha. The reservoir is a source of water for producing around 300 MW of hydropower and irrigating 436,000 ha of cultural command area. The wetland also provides important hydrological services by moderating floods in the Mahanadi delta, the ecological and socio-economic hub of the east coast of India. Hirakud reservoir supports abundant tourism, and forms an integral part of the high touristic value sites located around Sambalpur with over 30,000 tourists annually visiting the site.

2 - Data & location

- 2.1 Formal data
- 2.1.1 Name and address of the compiler of this RIS

| Responsible compiler | |
|-----------------------------|---|
| Institution/agency | Divisional Forest Officer, Hirakud Wildlife Division,Sambalpur |
| Postal address | Office of Divisional Forest Officer, Hirakud Wildlife Division, Sambalpur Near Deer Park Po-Motijharan Dist-Sambalpur 768001 |
| National Pamear Administrat | ive Authority |

National Ramsar Administrative Authority

| Institution/agency | Ministry of Environment, Forest & Climate Change, Government of India |
|--------------------|---|
| | |
| Destal eddaese | Office of the Additional Secretary (Wetlands), Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi |
| Postal address | 110003 |

2.1.2 - Period of collection of data and information used to compile the RIS

| From year | 2018 |
|-----------|------|
| To year | 2020 |

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Hirakud Reservoir Spanish)

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Former maps 0

Boundaries description

The boundaries of the wetland correspond to Jharsuguda District in the north, Bargarh District (Debrigarh Wildlife Sanctuary) to the south, and Mahanadi River to the east. The wetland spans between two hills; the Laxmidungri on the left and the Chandili Dunguri on the right. Geologically, granite and gneisses underlie the catchment's soil mantle. Mixed red and black soil dominates the region surrounding the reservoir. The threetier reservoir basin comprises a shallow terrace, gradual slopes, and a deeper central plain. The wetland is bordered by Praharsrihara village in the south, Rengali in the east, Beharamal in the north, and Palsada village in the west.

2.2.2 - General location

| a) In which large administrative region does | Bargarh district |
|--|------------------|
| the site lie? | |
| b) What is the nearest town or population | Bargarh |

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other Yes O No (countries? b) Is the site adjacent to another designated Ramsar Site on the Yes O No () territory of another Contracting Party?

2.2.4 - Area of the Site

Official area, in hectares (ha): 65400

Area, in hectares (ha) as calculated from 65435.119 **GIS** boundaries

2.2.5 - Biogeography

Biogeographic regions

| Regionalisation scheme(s) | Biogeographic region | |
|---|----------------------|--|
| Freshwater Ecoregions of the World (FEOW) | Ganges Delta & Plain | |

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

Criterion 1: Representative, rare or unique natural or near-natural wetland types

| Hydrological services provided | "Hirakud River Valley Project" is one of the earliest major multi-purpose river valley projects in India. The reservoir forms the largest artificial lake in Asia with an area of 746 sq km and a shoreline over 640 km. The 1,248 m long masonry dam has a height of 61 m and this, along with the earthen dams, has a combined length of 25.8 km. Post-monsoons, during the months of September, October and November, the reservoir remains full at what is termed High Flood Level (HFL) which is at 630 feet above MSL. During succeeding months, as rains stop and the water is released into the canals, the water level recedes to about a kilometer at places. By peak summer in mid-May-June, the level reaches the minimum, at about 590 feet. With an installed capacity of 347.5 MW power generation, the reservoir serves the irrigation needs of 75,000 square kilometers of land. By regulating riverine flows from 83,400 sq km of River Mahanadi Basin, Hirakud Reservoir moderates floods in the Mahanadi Delta, the ecological and socio-economic hub of the east coast of India. |
|-----------------------------------|---|
| Other ecosystem services provided | The reservoir is fringed to the north and west by the forests of the Debrigarh sanctuary in Bargarh district, eastern side by fishing villages, cultivation and industrial areas of Jharsuguda district and in the south- eastern side by forested ridges and inhabited areas of Sambalpur district. Locals living within a distance of 10 kms from the boundary mainly depend on agriculture for their sustenance, with paddy as the major crop. These communities accrue water for irrigation and domestic use from the reservoir. The reservoir is inhabited by 21 fish species of economic importance, presently yielding a catch of around 480 MT of fish annually, which is the mainstay of livelihoods of 7,000 fisher households. |
| Other reasons | Sprawling over a huge area encompassing various depth regimes with different habitat types, it is not surprising that these extensive wetlands constitute an excellent waterbird habitat, supporting up to 130 species of waterbirds. Along with rich biodiversity, the reservoir supports abundant tourism, and forms an integral part of the high touristic value sites located around Sambalpur. Over 30,000 tourists visit the reservoir annually for recreational purposes. |

Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information The wetland supports globally conservational significant species like Chitra indica, Melursus ursinus, Panthera pardus, Rusa unicolor, Tetracerus quadricornis, Pangasianodon hypophthalmus, Aythya baeri, Sterna acuticauda, and Sterna aurantia.

Criterion 3 : Biological diversity

The reservoir and the adjoining sanctuary support a rich biodiversity. In terms of species diversity, the undulating terrain is interspersed by valleys with miscellaneous forests having bushy undergrowth and extensive meadows and harbours a variety of carnivorous and herbivorous animals. The wide variety of faunal species in the site include Axis axis, Boselaphus tragocamelus, Bos frontalis gaurus, Chitra indica, Melursus ursinus, Panthera pardus, Panthera tigris tigris, Rusa unicolor, Tetracerus guadricornis, Oreochromis niloticus. Pangasianodon hypophthalmus. Tor tor, Anas acuta, Anas crecca, Anas Penelope, Anas poecilorhyncha zonorhyncha, Anas guerguedula, Anas strepera, Anastomus oscitans, Anser indicus, Apus apus, Ardea alba, Ardeola gravii, Avthya farina, Avthya fuligula, Bubulcus ibis, Justification Chidonias hybrida. Chroicocephalus brunnicephalus. Chroicocephalus ridibundus, Dendrocygna bicolor, Dendrocygna javanica, Egretta garzetta, Egretta intermedia, Emberiza schoeniclus, Gallinula chloropus, Gelochelidon nilotica. Glareola lacteal. Halcvon smyrnensis, Himantopus Himantopus, Hirundo rustica. Hirundo smithii, Hydrocoloeus minutus, Hydrophasianus chirurgus, Ichthyaetus ichthyaetus, Lanius schach, Larus fuscus, Merops orientalis, Microcarbo niger, Nettapus coromandelianus, Netta rufina, Petrochelidon fluvicola, Phalacrocorax fuscicollis, Podiceps cristatus, Porphyrio porphyrio, Sterna aurantia. Sternula albifrons. Tachybaptus ruficollis, Tadorna ferruginea, and Threskiornis melanocephalus. These are significant and representative of the biodiversity of the region.

Criterion 4 : Support during critical life cycle stage or in adverse conditions

Many avi-faunal species depend on the site for breeding and nesting. The species which require the site to complete its complete include Acridotheres tristis, Acrocephalus stentoreus, Actitis hypoleucos, Alcedo atthis, Amandava amandava, Amaurornis phoenicurus, Anas clypeata, Anas platyrhynchos, Anhinga melanogaster, Anthus rufulus, Apus pacificus, Ardea cinerea, Ardea purpurea, Aythya baeri, Butorides striata, Calidris temminckii, Cecropis daurica, Ceryle rudis, Charadrius alexandrines, Charadrius dubius, Chlidonias leucopterus, Cinnyris jugularis, Circus aeruginosus, Cypsiurus balasiensis, Dicrurus macrocercus, Dupetor flavicollis, Falco tinnunculus, Galerida cristata, Gallicrex cinerea, Gallinago gallinago stenura, Gracupica contra, Haliaeetus leucogaster, Haliastur indus, Harpactes fasciatus, Icthyophaga ichthyaetus, Larus fuscus heuglini, Limosa limosa, Luscinia calliope, Megalurus palustris, Merops leschenaultia, Metopidius indicus, Milvus migrans, Motacilla cinerea, Motacilla citreola, Motacilla flava, Motacilla maderaspatensis, Nycticorax nycticorax, Ocyceros birostris, Pandion haliaetus, Spilornis cheela, Sterna acuticauda, Sterna hirundo, Streptopelia decaocto, Tringa erythropus, Tringa glareola, Tringa nebularia, Tringa stagnatilis, Tringa tetanus, Vanellus cinereus, Vanellus duvaucelii, Vanellus indicus, and Vanellus malabaricus.

Criterion 5 : >20,000 waterbirds

Optional text box to provide further

information

| Overall waterbird numbers | 142466 |
|---------------------------|-------------------------|
| Start year | 2020 |
| End vear | 2022 |
| Source of data | State Forest Department |

The site marks the presence of sufficient bird species and sufficient bird counts. The contributing avian species include Acridotheres tristis. Acrocephalus stentoreus. Actitis hypoleucos. Alcedo atthis. Amandava amandava, Amaurornis phoenicurus, Anas acuta, Anas crecca, Anas platvrhvnchos, Anas poecilorhyncha, Anastomus oscitans, Anhinga melanogaster, Anser indicus, Anthus rufulus, Apus apus, Apus pacificus, Ardea alba, Ardea cinerea, Ardea intermedia, Ardea purpurea, Ardeola gravii, Aythya baeri, Avthva ferina, Avthva fuligula, Bubulcus ibis, Butorides striata, Calidris temminckii, Cecropis daurica. Cervle rudis. Charadrius alexandrines. Charadrius dubius. Chlidonias hybridax. Chlidonias leucopterus, Chroicocephalus brunnicephalus, Chroicocephalus ridibundus, Cinnyris jugularis, Circus aeruginosus, Cypsiurus balasiensis, Dendrocygna bicolor, Dendrocygna javanica, Dicrurus macrocercus, Egretta garzetta, Emberiza schoeniclus, Falco tinnunculus, Fulica atra, Galerida cristata, Gallicrex cinerea, Gallinago gallinago, Gallinago stenuram, Gallinula chloropus, Gelochelidon nilotica, Glareola lacteal, Gracupica contra, Halcyon smyrnensis, Haliaeetus leucogaster, Haliastur indus, Harpactes Optional text box to provide furthe fasciatus, Himantopus Himantopus, Hirundo rustica, Hirundo smithii, Hydrocoloeus minutus, information Hydrophasianus chirurgus, Ichthyaetus ichthyaetus, Ichthyophaga ichthyaetus, Ixobrychus flavicollis, Lanius schach, Larus fuscus, Larus fuscus heuglini, Limosa limosa, Luscinia calliope, Mareca Penelope, Mareca strepera, Megalurus palustris, Merops leschenaultia, Merops orientalis, Metopidius indicus, Microcarbo niger, Milvus migrans, Motacilla cinerea, Motacilla citreola, Motacilla flava, Motacilla maderaspatensis, Netta rufina, Nettapus coromandelianus, Nycticorax nycticorax, Ocyceros birostris, Pandion haliaetus, Petrochelidon fluvicola. Phalacrocorax fuscicollis. Podiceps cristatus. Porphyrio porphyrio. Pseudibis papillosa. Red-wattled Lapwing, Sarkidiornis melanotos, Saxicola caprata, Saxicola rubicola, Spatula clypeata, Spatula guerguedula, Spilopelia chinensis, Spilornis cheela, Sterna acuticauda, Sterna aurantia, Sterna hirundo, Sternula albifrons, Streptopelia decaocto, Tachybaptus ruficollis, Tadorna ferruginea, Threskiornis melanocephalus, Tringa erythropus, Tringa glareola, Tringa nebularia, Tringa stagnatilis. Tringa tetanus. Vanellus cinereus. Vanellus duvaucelii. and Vanellus malabaricus

Criterion 6 : >1% waterbird population

| | The site houses more than 1% threshold population of avian species like Dendrocygna bicolor, |
|--------------------------------------|--|
| Optional text box to provide further | Dendrocygna javanica, Fulica atra, Microcarbo niger, Nettapus coromandelianus, Netta rufina, and |
| Information | Tadorna ferruginea. |

Criterion 8 : Fish spawning grounds, etc.

| Justification | Hirakud Reservoir serves as a feeding and spawning grounds for several fish species like Oreochromis niloticus, Pangasianodon hypophthalmus, and Tor tor. These species periodically use the disperse and/or migrate to tributaries/sub-tributatieres of the adjoining river throughout the year to complete their life cycle. |
|--|--|
| | Herbivores such as spotted Deer, Sambar, Four Horned Antelope, Nilgai, and Carnivores such as Leopard ,Jackal, Hyaena , Wild dog ,Fox, and others animals such as Indian Gaur, Bear, Wild Boar, Civet, Purcupine, Hanuman Langur, etc. are noticed. Among birds, Peafowl's are seen in plenty. Other birds such as Eagle, Owl, Parrot, Flycatcher, Sunbird, Hornbill, Crow, Pigeon, and Nightjar, etc. are seen. Python, Cobra, and other Snakes are rarely seen. |
| Optional text box to provide further information | The fish fauna of the Hirakud reservoir, including that of the parent rivers, comprises both plain and hill river species with the sizeable representation of carps and catfishes. A survey conducted in the 1950s recorded 86 species belonging to 20 families, of which 24 were of economic significance. Migratory fishes like Tor mosal and Rhinomugil corsula and prawns. (Macrobrachium spp.) have been affected adversely by the dam, while Indian major carps and bagrid catfishes have adapted well to the lentic conditions. |

<no data available>

3.3 - Animal species whose presence relates to the international importance of the site

| Phylum | Scientific name | Species qualifies underSpecies contributes undercriterioncriterion24693578 | Pop. Size Period of pop. Est. | % occurrence 1) | JCN Red Apper | ES CMS Idix I Appendix | Other Status | Justification | | | | |
|-----------------------------|--------------------------------|--|----------------------------------|-----------------------|---------------------|---------------------------|--------------|--|--|--|--|--|
| Others | | | | | | | | | | | | |
| CHORDATA/ MAMMALIA | Axis axis | | | | | | | Is important for maintaining the biological diversity of a particular biogeographic region. | | | | |
| CHORDATA/ MAMMALIA | Boselaphus tragocamelus | | | | | | | Is important for maintaining the biological diversity of a particular biogeographic region. | | | | |
| CHORDATA/ MAMMALIA | Bos frontalis gaurus | | | | V | | | Is important for maintaining the biological diversity of a particular biogeographic region. | | | | |
| CHORDATA/ REPTILIA | Chitra indica | | | | | | | Is important for maintaining the biological diversity of a particular biogeographic region. EN species. | | | | |
| CHORDATA/ MAMMALIA | Melursus ursinus | | | | vu 🗵 | | | Is important for maintaining the biological diversity of a particular biogeographic region. VU species. | | | | |
| CHORDATA/ MAMMALIA | Panthera pardus | | | | vu | | | Is important for maintaining the biological diversity of a particular biogeographic region. VU species. | | | | |
| CHORDATA/ MAMMALIA | Panthera tigris tigris | | | | | | | Is important for maintaining the biological diversity of a particular biogeographic region. | | | | |
| CHORDATA/ MAMMALIA | Rusa unicolor | | | | vu [| | | Is important for maintaining the biological diversity of a particular biogeographic region. | | | | |
| CHORDATA/ MAMMALIA | Tetracerus quadricornis | | | | v C | | | Is important for maintaining the biological diversity of a particular biogeographic region. | | | | |
| Fish, Mollusc a | nd Crustacea | | | | | | | | | | | |
| CHORDATA/ ACTINOPTERYGII | Oreochromis niloticus | | | | | | | Uses the site as a spawning and feeding ground besides using it for migration purposes. | | | | |
| CHORDATA/ ACTINOPTERYGII | Pangasianodon hypophthalmus | | | | | | | Uses the site as a spawning and feeding ground besides using it for migration purposes. | | | | |
| CHORDATA/ ACTINOPTERYGII | Tor tor | | | | | | | Uses the site as a spawning and feeding ground besides using it for migration purposes. | | | | |
| Birds | | | | | | | | | | | | |
| CHORDATA/ AVES | Acridotheres tristis | | 3 2020 - 2022 | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. | | | | |
| CHORDATA/ AVES | Acrocephalus stentoreus | | 13 2020 - 2022 | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. | | | | |

| Phylum | Scientific name | Species qualifies under criterion 2 4 6 9 | Sp con u cr 3 | pecies atributes ander iterion 5 7 8 | Pop. Size | Period of pop. Est. | % occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|-------------------|---------------------------------------|---|---------------------------|--|--------------|---------------------|-----------------------|---------------------|---------------------|-------------------|--------------|--|
| CHORDATA/ AVES | Actitis hypoleucos | | | 200 | 14 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Alcedo atthis | | | 200 | 38 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Amandava amandava | | | 200 | 13 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Amaurornis phoenicurus | | | | 62 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anas acuta | | 25 | 200 | 2871 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anas clypeata | | | 200 | 167 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anas crecca | | | 200 | 640 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anas penelope | | | 200 | 507 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anas platyrhynchos | | | | 55 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anas poecilorhyncha zonorhyncha | | 26 | 200 | 3584 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anas querquedula | | | | 341 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anas strepera | | | 200 | 3305 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anastomus oscitans | | | 200 | 729 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anhinga melanogaster | | | 200 | 10 | 2020 - 2022 | | NT | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |

| Phylum | Scientific name | Spe qua un crit 2 4 | ecies alifies nder cerion 6 | 5 co c 9 3 | Species ntribute under riterion 5 7 | es 1 | Pop. Size | Period of pop. Est. | % occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|-------------------|------------------------|---------------------------------|---|---------------------|---|---------|--------------|---------------------|-----------------------|---------------------|---------------------|-------------------|--------------|--|
| CHORDATA/ AVES | Anser indicus | | | | 20 | | 360 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Anthus rufulus | DØ | | | 20 | | 3 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Apus apus | | | | 20 | | 893 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Apus pacificus | | 100 | | 20 | | 117 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Ardea alba | | | | 20 | | 371 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Ardea cinerea | | 300 | | 20 | | 50 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Ardea purpurea | DØ | 100 | | 20 | | 137 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Ardeola grayii | | | | ØO | | 456 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Aythya baeri | ZZ | 900 | | 20 | | 3 | 2020 - 2022 | | CR | | ø | | Critically endangered species.Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Aythya ferina | | | | ØO | ÷ [] | 3177 | 2020 - 2022 | | VU | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Aythya fuligula | | D | | ØO | 1 | 8618 | 2020 - 2022 | 1.86 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Bubulcus ibis | | | | Ø 🗆 | | 518 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Butorides striata | DØ | | | ØO | | 1 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Calidris temminckii | DØ | 900 | | 20 | | 13 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |

| Phylum | Scientific name | Species qualifies under criterion 2 4 6 9 | S cor ci 3 | pecies ntributes under riterion 5 7 | Pop. Size | Period of pop. Est. | % occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|-------------------|-----------------------------------|---|---------------------|---|--------------|---------------------|-----------------------|---------------------|---------------------|-------------------|--------------|--|
| CHORDATA/ AVES | Cecropis daurica | | | 200 | 2 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Ceryle rudis | | | 200 | 22 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Charadrius alexandrinus | | | 200 | 16 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Charadrius dubius | | | 200 | 79 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Chlidonias hybrida | | | 200 | 2483 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Chlidonias Ieucopterus | | | 200 | 13 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Chroicocephalus brunnicephalus | |] 🖸 (| 200 | 4750 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Chroicocephalus ridibundus | |] 🖸 (| 200 | 1848 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Cinnyris jugularis | | | 200 | 8 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Circus aeruginosus | | | ZOC | 45 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Cypsiurus balasiensis | | | 200 | 26 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Dendrocygna bicolor | |] 🖸 [| 200 | 999 | 2020 - 2022 | 2 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Dendrocygna javanica | |] 🖸 [| 20(| 30166 | 2020 - 2022 | 3.02 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Dicrurus macrocercus | | | 200 | 10 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |

| Phylum | Scientific name | 2 | Speci qualifi unde criteri 4 (| es ies er ion 6 | 2 CC CC 9 3 | Spec ontrik und criter 5 | ies outes er rion 7 8 | Pop Size | Period of pop. E | st. occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|-------------------|--------------------------|---|--|-----------------------------|-------------------|--------------------------------------|-----------------------------------|-------------|------------------|----------------------|---------------------|---------------------|-------------------|--------------|--|
| CHORDATA/ AVES | Dupetor flavicollis | | Ø | | | Ø | | 2 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Egretta garzetta | | | | | I. | | 452 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Egretta intermedia | | | | | I. | | 499 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Emberiza schoeniclus | | | | | I | | 217 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Falco tinnunculus | | Ø | | | Ø | |] 1 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Fulica atra | | | 20 | | Ø | | 2045 | 8 2020 - 2022 | 1.36 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Galerida cristata | | Ø | | | Ø. | |] 1 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Gallicrex cinerea | | Ø | | | Ø. | |] 1 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Gallinago gallinago | | Ø | | | I | | 17 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Gallinago stenura | | Ø | | | Ø. | |] 10 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Gallinula chloropus | | | | | Ø | |] 106 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Gelochelidon nilotica | | | | | Ø. | | 313 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Glareola lactea | | | | | I | | 592 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Gracupica contra | | Ø | | | Ø | |] 1 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Halcyon smyrnensis | | | | | Ø | |] 104 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |

| Phylum | Scientific name | Species qualifies under criterion 2 4 6 9 | Sp cont cri 3 5 | becies tributes inder iterion 5 7 8 | Pop. Size | Period of pop. Est. | % occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|-------------------|-----------------------------|---|--------------------------|---|--------------|---------------------|-----------------------|---------------------|---------------------|-------------------|--------------|--|
| CHORDATA/ AVES | Haliaeetus Ieucogaster | | | | 1 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Haliastur indus | | | | 6 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Harpactes fasciatus | | | 200 | 3 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Himantopus himantopus | | | 200 | 481 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Hirundo rustica | | Ø | 200 | 3266 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Hirundo smithii | | | | 314 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Hydrocoloeus minutus | | | | 192 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Hydrophasianus chirurgus | | | 200 | 148 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | lchthyaetus ichthyaetus | | | 200 | 452 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | lcthyophaga ichthyaetus | | | 200 | 2 | 2020 - 2022 | | NT | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Lanius schach | | | 200 | 787 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Larus fuscus | | | | 627 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Larus fuscus heuglini | | | | 13 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Limosa limosa | | | | 33 | 2020 - 2022 | | NT | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |

| Phylum | Scientific name | Species qualifies under criterion 2 4 6 9 | Species contributes under criterion | Pop. Size | Period of pop. Est. | % occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|-------------------|------------------------------|---|--|--------------|---------------------|-----------------------|---------------------|---------------------|-------------------|--------------|--|
| CHORDATA/ AVES | Luscinia calliope | | | 1 | 2020 - 2022 | | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Megalurus palustris | | | 17 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Merops Ieschenaulti | | | 12 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Merops orientalis | | 9900 | 303 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Metopidius indicus | | | 68 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Microcarbo niger | | ØØOO | 8498 | 2020 - 2022 | 5.67 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Milvus migrans | | | 21 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Motacilla cinerea | | | 11 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Motacilla citreola | | | 2 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Motacilla flava | | | 1 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Motacilla maderaspatensis | | | 33 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Nettapus coromandelianus | | | 3187 | 2020 - 2022 | 3.19 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Netta rufina | | ØØ00 | 6184 | 2020 - 2022 | 6.18 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Nycticorax nycticorax | | | 25 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |

| Phylum | Scientific name | Species qualifies under criterion 2 4 6 9 | Species contributes under criterion 3 5 7 8 | Pop. Size | Period of pop. Est. | % occurrence 1) Lis | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|-------------------|------------------------------|---|---|--------------|---------------------|------------------------------|---------------------|-------------------|--------------|--|
| CHORDATA/ AVES | Ocyceros birostris | | | 5 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Pandion haliaetus | | | 5 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Petrochelidon fluvicola | | | 550 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Phalacrocorax fuscicollis | | | 347 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Podiceps cristatus | | | 6404 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Porphyrio porphyrio | | | 2470 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Pseudibis papillosa | | | 5 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Sarkidiornis melanotos | | | 3 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Saxicola caprata | | | 11 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Saxicola rubicola | | | 5 | 2020 - 2022 | | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Spilopelia chinensis | | | 1 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Spilornis cheela | | | 1 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Sterna acuticauda | ØØOC | | 21 | 2020 - 2022 | EN | | | | Endangered species. Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Sterna aurantia | ØOOC | | 198 | 2020 - 2022 | VU | | | | Vulnerable species. Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Sterna hirundo | | | 11 | 2020 - 2022 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |

| Phylum | Scientific name | Species qualifies under criterion 2 4 6 9 | SI con cr | pecies atributes under riterion 5 7 8 | Pop. Size | Period of pop. Est. | % occurrence 1) | IUCN Red List | CITES Appendix I | CMS Appendix I | Other Status | Justification |
|-------------------|--------------------------------|---|-----------------|---|--------------|---------------------|-----------------------|---------------------|---------------------|-------------------|--------------|--|
| CHORDATA/ AVES | Sternula albifrons | | | 200 | 315 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Streptopelia decaocto | |] 🗆 🖟 | | 1 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Tachybaptus ruficollis | |] 🗹 🖟 | 200 | 622 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Tadorna ferruginea | |) Z (| 200 | 516 | 2020 - 2022 | 1.03 | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Threskiornis melanocephalus | |] 🛛 🖟 | 200 | 749 | 2020 - 2022 | | NT | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Tringa erythropus | | | 200 | 7 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Tringa glareola | | | 200 | 47 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Tringa nebularia | |] 🗆 🖟 | | 4 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Tringa stagnatilis | | | 200 | 12 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Tringa totanus | | | | 78 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Vanellus cinereus | | | | 3 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Vanellus duvaucelii | | | | 1 | 2020 - 2022 | | NT | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Vanellus indicus | | | 200 | 61 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |
| CHORDATA/ AVES | Vanellus malabaricus | | | 200 | 15 | 2020 - 2022 | | LC | | | | Uses the site for breeding and nesting. The population of this bird is significant and representative of the biodiversity of the region. |

1) Percentage of the total biogeographic population at the site

3.4 - Ecological communities whose presence relates to the international importance of the site

<no data available>

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

Hirakud Reservoir, the largest earthen dam in Odisha, constructed across river Mahanadi at Sambalpur, started operating in 1957. Key ecological character features of Hirakud stem from its primary purpose of construction, which is to provide flood control in Mahanadi delta during monsoons and store water for meeting various human uses during the non-monsoon season. However, as an ecosystem, Hirakud is bestowed with a range of additional ecosystem services and biodiversity values, maintenance, and enhancement of which make up the site's wise use. The wetland supports 130 species of water birds and 54 species of fishes. The gradient of habitats ranging from riverine to lacustrine, while moving towards the dam, enables the reservoir to support a range of floral and faunal species, including several of high conservation significance. For instance, of the known 54 species of fish from the reservoir, one has been classed as being endangered and six near threatened. Similarly, of the over 130 bird species recorded at this site, 20 species are of high conservation significance. The reservoir is inhabited by 21 fish species of economic importance, presently yielding a catch of around 480 MT of fish annually, which is the mainstay of livelihoods of 7,000 fisher households. By regulating riverine flows from 83,400 sq.km of River Mahanadi Basin, Hirakud Reservoir moderates floods in the Mahanadi Delta, the ecological and socio-economic hub of the east coast of India. Hirakud reservoir is a source of water for producing around 300 MW of hydropower and irrigating 436,000 ha of cultural command area. The wetland supports abundant tourism and forms an integral part of the high touristic value sites located around Sambalpur. Over 30,000 tourists visit the reservoir annually for recreational purposes.

4.2 - What wetland type(s) are in the site?

Inland wetlands

| Wetland types (code and name) | Local name | Ranking of extent (1: greatest - 4: least) | Area (ha) of wetland type | Justification of Criterion 1 | | | |
|--|-------------------|--|------------------------------|------------------------------|--|--|--|
| Fresh water > Lakes and pools >> P: Seasonal/ intermittent freshwater lakes | Hirakud Reservoir | 1 | 52100 | Unique | | | |

Human-made wetlands

| Wetland types (code and name) | Local name | Ranking of extent (1: greatest - 4: least) | Area (ha) of wetland type |
|-----------------------------------|------------|--|------------------------------|
| 6: Water storage areas/Reservoirs | Hirakud | 2 | 13300 |

4.3 - Biological components

4.3.1 - Plant species

<no data available>

4.3.2 - Animal species

Optional text box to provide further information

The above listed species have been reported from the downstream areas of the Mahanadi river.

4.4 - Physical components

4.4.1 - Climate

| Climatic region | Subregion |
|---------------------------|---|
| A: Tropical humid climate | Am: Tropical monsoonal (Short dry season; heavy monsoonal rains in other months) |

The average annual temperature ranges from 12°C (in December and January) to 40°C (in May and June). The average annual rainfall for Hirakud has been recorded as 1386.32 mm, with July and August being the months in which maximum rainfall is recorded

4.4.2 - Geomorphic setting

| a) I | Minimum elevation above sea | level (in metres) | 192 | | |
|------|-----------------------------|----------------------|-----|-------------|-----------|
| a) N | Maximum elevation above sea | level (in metres) | 195 | | |
| | | | | Entire rive | r basin 🗖 |

- Middle part of river basin
- Lower part of river basin
- More than one river basin \Box
 - Not in river basin
 - Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

| Vahanadi | | | |
|----------|--|--|--|
| | | | |

4.4.3 - Soil

h

Mineral

Organic 🗹

No available information

Are soil types subject to change as a result of changing hydrological Yes O No O conditions (e.g., increased salinity or acidification)?

4.4.4 - Water regime

| Water permanence | |
|------------------------------------|-----------|
| Presence? | |
| Usually permanent water present | No change |

Source of water that maintains character of the site

| Presence? | Predominant water source | |
|------------------------------------|--------------------------|-----------|
| Water inputs from surface water | × | No change |
| Water inputs from precipitation | × | No change |

Water destination

| Presence? | |
|-------------------------|-----------|
| To downstream catchment | No change |

Stability of water regime

| Presence? | |
|---|-----------|
| Water levels fluctuating (including tidal) | No change |

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

The surface water inflow into the Hirakud Reservoir is received from Mahanadi River, the lb River and precipitation. Downstream the reservoir flows govern the hydrology of Mahanadi Delta, in particular freshwater inflows into wetlands such as Chilika and Bhitarkanika.

4.4.5 - Sediment regime

| Significant erosion of sediments occurs on the site \square | |
|---|-------------------|
| accretion or deposition of sediments occurs on the site 🗹 | Significant acc |
| ansportation of sediments occurs on or through the site ${f arsigma}$ | Significant trans |
| ne is highly variable, either seasonally or inter-annually 🗹 | ediment regime |
| Sediment regime unknown | |
| | |

Please provide further information on sediment (optional):

In the reservoir upstream and downstream stretches the sediments tends to be neutral to slightly alkaline except in certain downstream patches where marginal acidity has been observed. The sediment is rich in nitrogen and phosphorus but, has low organic carbon content.

4.4.6 - Water pH

Se

Acid (pH<5.5)

Circumneutral (pH: 5.5-7.4)

Alkaline (pH>7.4) Unknown

Please provide further information on pH (optional):

Wetland water tends to be neutral to slightly alkaline in the range between 7.4-8.3. However, marginally acidic patches have been observed in Ib-Jharsuguda Valley and immediate downstream of the reservoir.

4.4.7 - Water salinity

| Fresh (<0.5 g/l) 🗹 |
|---|
| Mixohaline (brackish)/Mixosaline (0.5-30 g/l) 🗖 |
| Euhaline/Eusaline (30-40 g/l) 🗖 |
| Hyperhaline/Hypersaline (>40 g/l) 🗖 |
| Unknown |
| 1.4.8 - Dissolved or suspended nutrients in water |
| Eutrophic |
| Mesotrophic 🗹 |
| Oligotrophic |

Dystrophic

Unknown 🗖

Please provide further information on dissolved or suspended nutrients (optional):

Conductivity values range between 120-261 µS/cm while nitrate concentration ranges between 0.03-5.71 mg/l.

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar O ii) significantly different ③ site itself:

Surrounding area has greater urbanisation or development 🜌

Surrounding area has higher human population density 🗹

Surrounding area has more intensive agricultural use 🗹

Surrounding area has significantly different land cover or habitat types \Box

Please describe other ways in which the surrounding area is different:

The multiple values of Hirakud Reservoir have been adversely affected by rapid

transformation of catchments and increasing demands for water in the downstream reaches.

Silt is accumulating in the reservoir at rates much faster than planned for, reducing its water

storage and flood moderation capacity. Expansion of agriculture within the command, industries, and urban settlement within the reservoir catchments have accentuated water use conflicts. Decreasing fish catch, reduction in fish species diversity and increasing pollution have placed the livelihood of fishers under great stress. Biodiversity has been adversely impacted by habitat fragmentation and increasing anthropogenic stress on key habitats.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

| Ecosystem service | Examples | Importance/Extent/Significance | |
|-------------------|--|--------------------------------|--|
| Fresh water | Water for irrigated agriculture | High | |
| Fresh water | Drinking water for humans and/or livestock | High | |
| Fresh water | Water for energy production (hydro-electricity) | High | |
| Fresh water | Water for industry | High | |

Regulating Services

| Ecosystem service | Examples | Importance/Extent/Significance |
|-------------------------------------|---|--------------------------------|
| Maintenance of hydrological regimes | Storage and delivery of water as part of water supply systems for agriculture and industry | High |
| Hazard reduction | Flood control, flood storage | High |

Cultural Services

| Ecosystem service | Examples | Importance/Extent/Significance | |
|---|---|--------------------------------|--|
| Recreation and tourism | Water sports and activities | High | |
| Spiritual and inspirational Aesthetic and sense of place values | | High | |
| Scientific and educational | Important knowledge systems, importance for research (scientific reference area or site) | Medium | |

Supporting Services What is the Site like?, S4 - Page 3 RIS for Site no. 2494, Hirakud Reservoir, India

| Ecosystem service Examples | | Importance/Extent/Significance | | | |
|--|---|--------------------------------|--|--|--|
| Biodiversity | Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part | High | | | |
| | | | | | |
| | Within the site: 50000 | | | | |
| Outside the site: 50000 | | | | | |
| Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? | | | | | |
| 4.5.2 - Social and cultural values | | | | | |
| i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and 🗹 use that maintain the ecological character of the wetland | | | | | |

- ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland
 - iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
- iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological \Box character of the wetland

4.6 - Ecological processes

<no data available>

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

| Public ownership | | | |
|--|------------------------|-------------------------|--|
| Category | Within the Ramsar Site | In the surrounding area | |
| Provincial/region/state government | V | × | |
| | | | |
| Private ownership | | | |
| Category | Within the Ramsar Site | In the surrounding area | |
| Cooperative/collective (e.g., farmers cooperative) | | V | |
| | | | |
| Other | | | |
| Category | Within the Ramsar Site | In the surrounding area | |
| Commoners/customary rights | × | X | |

Provide further information on the land tenure / ownership regime (optional):

The Office of Chief Engineer, Upper Mahanadi Basin is responsible for operating the Hirakud Dam during the monsoon season as per the prescribed rule curve. It also implements water allocation decisions of the Hirakud Coordination Committee. Hydropower operations have been placed under the Odisha Hydro Power Corporation Limited (OHPCL). OHPCL is a power utility set up by the Government of Odisha with an objective of maintaining and augmenting the state's hydropower generation capacity on the principles of economic profitability as well as ecological security. The agency manages the Hirakud Power System comprising of the Burla and Chiplima Power Stations.

5.1.2 - Management authority

| Please list the local office / offices of any agency or organization responsible for managing the site: | Anshu Pragyan Das,OFS-I(SB) Divisional Forest Officer, Hirakud Wildlife Division, Sambalpur Office of the Divisional Forest Officer, Hirakud Wildlife Division, Sambalpur, Near Deer Park Po-Motijharan Dist-Sambalpur 768001 |
|---|--|
| Provide the name and/or title of the person or people with responsibility for the wetland: | Anshu Pragyan Das, OFS-I(SB) Divisional Forest Officer, Hirakud Wildlife Division, Sambalpur |
| Postal address: | Office of the Divisional Forest Officer, Hirakud Wildlife Division, Sambalpur, Near Deer Park Po-Motijharan Dist-Sambalpur 768001 |
| E-mail address: | hirakudwildlife1@gmail.com |

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

| Human settlements (non agricultural) | | | | | |
|--------------------------------------|---------------|------------------|-----------------|-------------------------|--|
| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area | |
| Commercial and industrial areas | Medium impact | | × | × | |
| Housing and urban areas | High impact | | | × | |

Water regulation

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|-------------------------------------|---------------|------------------|-----------------|-------------------------|
| Water releases | High impact | | 1 | × |

Agriculture and aquaculture

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|--------------------------------------|---------------|------------------|-----------------|-------------------------|
| Marine and freshwater aquaculture | Low impact | | Ľ | |

Biological resource use

RIS for Site no. 2494, Hirakud Reservoir, India

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|---|---------------|------------------|-----------------|-------------------------|
| Fishing and harvesting aquatic resources | Medium impact | | × | |

| Human intrusions and disturbance | | | | |
|-------------------------------------|---------------|------------------|-----------------|-------------------------|
| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
| Recreational and tourism activities | Low impact | | s. | V |

Natural system modifications

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|-------------------------------------|---------------|------------------|-----------------|-------------------------|
| Dams and water management/use | High impact | | × | × |

Pollution

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|-------------------------------------|---------------|------------------|-----------------|-------------------------|
| Agricultural and forestry effluents | Medium impact | | × | V |

Climate change and severe weather

| Factors adversely affecting site | Actual threat | Potential threat | Within the site | In the surrounding area |
|-------------------------------------|---------------|------------------|-----------------|-------------------------|
| Storms and flooding | High impact | | × | × |

5.2.2 - Legal conservation status

Non-statutory designations

| | Designation type | Name of area | Online information url | Overlap with Ramsar Site |
|-----|------------------|---------------------------------|--|--------------------------|
| Imp | ortant Bird Area | Debrigarh Wildlife Sanctuary | ECO-TOURISM GOVERNMENT OF ODISHAhttps://www.ecotourodisha.com | whole |

5.2.3 - IUCN protected areas categories (2008)

- la Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
 - Il National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

<no data available>

5.2.4 - Key conservation measures

| Legal protection | | | | |
|------------------|-------------|--|--|--|
| Measures | Status | | | |
| Legal protection | Implemented | | | |

| Н | la | bi | ta | t |
|---|----|----|----|---|
| | | | | |

| Measures | Status |
|-------------------------------------|-------------|
| Hydrology management/restoration | Implemented |

Species

| Measures | Status |
|---|-----------------------|
| Threatened/rare species management programmes | Partially implemented |

Human Activities

RIS for Site no. 2494, Hirakud Reservoir, India

| Measures | Status |
|--|-------------|
| Management of water abstraction/takes | Implemented |
| Fisheries management/regulation | Implemented |
| Harvest controls/poaching enforcement | Implemented |

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes O No O

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning Yes O No processes with another Contracting Party?

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No, but a plan is being prepared

5.2.7 - Monitoring implemented or proposed

| Monitoring | Status |
|------------------------------------|-------------|
| Water regime monitoring | Implemented |
| Water quality | Proposed |
| Birds | Implemented |
| Animal species (please specify) | Implemented |

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Badapanda, H. S., 1996. The fishery and biology of Mahanadi mahseer Tor mosal mahanadicus (David). Indian Journal of Fisheries, 43(4), pp. 325-331. Census of India, 2011. Primary Census Abstract - Odisha. New Delhi: Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India. CWC and NRSC, 2014. Mahanadi Basin. New Delhi: Central Water Commission (CWC), Ministry of Water Resources and Hyderabad: National Remote Sensing Centre (NRSC), ISRO, Department of Space, Government of India. Choudhury, P., Sandbhor, J. and Satapathy, P., 2012. Floods, Fields and Factories: Towards Resolving Conflicts around the Hirakud Dam. [Action Research Report]. Pune, India: Forum for Policy Dialogue on Water Conflicts in India. CPCB, 2007a. Status of water quality in India - 2005. [Monitoring of Indian Aquatic Resources, Series: MINARS/ /2006-2007]. Delhi: Central Pollution Control Board, Ministry of Environment and Forests, Government of India. CPCB, 2007b. Status of water quality in India - 2006. [Monitoring of Indian Aquatic Resources, Series: MINARS/ /2007-2008]. Delhi: Central Pollution Control Board, Ministry of Environment and Forests, Government of India. CPCB, 2008. Status of water quality in India - 2007. [Monitoring of Indian Aquatic Resources, Series: MINARS/ 29 /2008-2009]. Delhi: Central Pollution Control Board, Ministry of Environment and Forests, Government of India. CPCB, 2009. Status of water quality in India - 2008. [Monitoring of Indian Aquatic Resources, Series: MINARS/ 32 /2009-10]. Delhi: Central Pollution Control Board, Ministry of Environment and Forests, Government of India. CPCB, 2010. Status of water quality in India - 2009. [Monitoring of Indian Aquatic Resources, Series: MINARS/ /2009-10]. Delhi: Central Pollution Control Board, Ministry of Environment and Forests, Government of India. CPCB, 2011. Status of water quality in India - 2010. [Monitoring of Indian Aquatic Resources, Series: MINARS/ /2010-11]. Delhi: Central Pollution Control Board, Ministry of Environment and Forests, Government of India. Dash, M. C. and Mahanta J. K., 1993. Quantitative analysis of community structure of tropical amphibian assemblages and its significance to conservation. Journal of Biosciences, 18(1), pp. 121-139. Dash, M. C., Mishra, P. C., Kar, G. K. and Das, R. C., 1993. Hydrobiology of Hirakud Dam Reservoir. In: Mishra, P. C. and Trivedy, R. K. eds., 1993. Ecology and Pollution of Inland Lakes and Reservoirs. New Delhi: Ashish Publishing House, pp. 317-338. Day, F., 1889. Fauna of British India, including Ceylon and Burma (Fishes: Volume 1 and 2). London: Taylor and Francis Department of the Environment, Water, Heritage and the Arts, 2008. National Framework and Guidance for

Describing the Ecological Character of Australia's Ramsar Wetlands. [Module 2 of the National Guidelines for Ramsar Wetlands - Implementing the Ramsar Convention in Australia]. Canberra: Australian Government Department of the Env

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3) <2 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format) <no file available>

iii. a description of the site in a national or regional wetland inventory

iv. relevant Article 3.2 reports

v. site management plan

<1 file(s) uploaded>

vi. other published literature <2 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:







Submerged Temple (Tourism Department, 09-0 2016)



Fishing Boats (Department of Fisheries, 15-09-2020)



Landscape (Wetlands International South Asia, 14-11-2014)

Designation letter

<1 file(s) uploaded>

Date of Designation 2021-10-12