Ramsar Information Sheet

Published on 25 July 2022

India

Sakhya Sagar

Designation date	7 January 2022
Site number	2483
Coordinates	25°26'03"N 77°42'25"E
Area	248,00 ha

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

Sakhya Sagar, is a human-made wetland on the outskirts of the Shivpuri town and situated within the Madhav National Park. The wetland was created due to damming of the Manier River in 1918 by the Maharaja of Scindias clan. Spread across 248 ha with a catchment of 37,522 ha, the wetland helps in maintaining the ecological balance of the Madhav National Park. This wetland not only adds to the natural beauty of the area, but also provides a permanent source of water to the wildlife, and a fine wetland habitat for the aquatic fauna including thousands of migratory waterfowls. Marsh Crocodiles are in abundance in the lake. Due to this, the wetland looks like a 'Crocodile Safari' and attracts special attention from tourists.

The wetland catchment comprises the Madhav National Park, which is one of the oldest national parks of Madhya Pradesh and has a fascinating mix of natural splendors of history and architectural wonders. The park is unique in terms of having Sakhya Sagar and forest ecosystems, which are important biodiversity support systems. The wetland catchment covers mostly forests and rural areas in the northern and western sides of the wetland. The forests here are home to antelopes like nilgai, chinkara, chowsinga, and deer including chital, sambar, and barking Deer. Mammals such as leopard, wolf, jackal, wild dog, and porcupine are also found in the area.

The wetland comes under the jurisdiction of the Forest Department of the State Government of Madhya Pradesh.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency: MP State Wetlands Authority, Govt. of MP and Environmental Planning and Coordination Organization (EPCO)

Postal address: Madhya Pradesh State Wetland Authority and Environmental Planning & Coordination Organization (EPCO),
Department of Environment, Government of Madhya Pradesh
Paryavaran Parisar, E- 5, Arera Colony,
Bhopal 462016, Madhya Pradesh,
India

National Ramsar Administrative Authority

Institution/agency: Ministry of Environment, Forest & Climate Change

Postal address: Office of the Additional Secretary, Ministry of Environment, Forest and Climate Change, Government of India, Indira Paryavaran Bhavan, Jorbagh Road, New Delhi - 110 003 INDIA

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

From year: 2015

To year: 2020

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish): Sakhya Sagar

Unofficial name (optional): Chandpatha Lake

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 lake is surrounded by the Madhav National Park. The northern side of the lake is a hilly area and minor drains join Sakhya Sagar. The Eastern part of the lake covers small urban and rural settlements and major feeder drains come from Jadhav Sagar lake. The western side of the lake is a downstream and dam line. The water flows through the spillway and flows towards Madhav Lake.

2.2.2 - General location

a) In which large administrative region does the site lie?: The wetland is situated in Shivpuri District in the state of Madhya Pradesh

b) What is the nearest town or population centre?: Shivpuri

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes ○ No ◉

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes ○ No ◉

2.2.4 - Area of the Site

Official area, in hectares (ha): 248

Area, in hectares (ha) as calculated from GIS boundaries: 248.498

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Freshwater Ecoregions of the World (FEOW)	Indo-Gangetic plains

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

<no data available>

☑ Criterion 2 : Rare species and threatened ecological communities

☑ Criterion 3 : Biological diversity

Justification

Sakhya Sagar is an important biodiversity support system and depends on a wide variety of flora and fauna. Its perennial water bodies have suitable water levels at the time when migratory birds approach and arrive in this area. Also in the winter season, there is a preponderant of aquatic vegetation which provides ample food and space for them to live in various locations and habitats of Sakhya Sagar. It is quite rich in biodiversity, the principal components being Avifauna (both resident and migratory), Macrophytes,Fish, and Mammals. The biodiversity details of Sakhya Sagar are as follows:
1. Macrophytes: 16 species
2. Benthose: 26 species (includes Mollusca 11)
3. Fish fauna: 19 species (natural and cultured species)
4. Avifauna: 73 Species (including water/terrestrial/migratory/ local migratory/local residents etc.)
5. Reptiles 9 species and 1 species of Amphibian
6. Mammals - 19 species includes., Chinkara (Gagella gazella), Four-horned antelope (Tetracerus quadricornis), sambar (Rusa unicolor), chital (Axis axis), nilgai (Boselaphus Tragocamelus),

☑ Criterion 7 : Significant and representative fish

Justification

Sakhya Sagar supports significant populations of atleast nineteen indigenous fish species which spawn and breed in its habitat. The fish species in turn support the population of piscivorous birds while also depending on a healthy planktonic population. The fish species found here are a mix of riverine and palustrine habitat specialists which are critical to maintaining the overall biodiversity of the region.

3.2 - Plant species whose presence relates to the international importance of the site

<no data available>

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

Phylum	Scientific name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
		2	4	6	9	3	5	7	8								
Others																	
CHORDATA / MAMMALIA	*Rusa unicolor*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☐	☐		This vulnerable species is significant in maintaining the biological diversity of the region.
Fish, Mollusc and Crustacea																	
CHORDATA / ACTINOPTERYGII	*Wallago attu*	☑	☐	☐	☐	☑	☐	☑	☐				VU	☐	☐		Wetland provides breeding grounds and supports significant population of this indigenous vulnerable species, important for maintaining the biodiversity of the region.
Birds																	
CHORDATA / AVES	*Aythya ferina*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☐	☐	M	important for maintaining the biodiversity of the region.
CHORDATA / AVES	*Grus antigone*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☐	☐		This vulnerable species is important for maintaining the biodiversity of the region.
CHORDATA / AVES	*Rynchops albicollis*	☑	☐	☐	☐	☑	☐	☐	☐				EN	☐	☐		This endangered species is important for maintaining 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

Sakhya Sagar in Sirpiur, Madhya Pradesh, has been recognized as one of the most valuable wetlands by the International Union for Conservation of Nature and Natural Resources (IUCN). The wetland also has cultural and historical significance. In the beginning of the 20th century, Maharaja of Gwalior who was a great visionary developed it as a rich wildlife area and constructed a permanent source of water. He built a dam across the river Manihar in the year 1918 to create Sakhya Sagar lake. The Sakhya Sagar lake's gross storage capacity is 7.78 m.cum. This lake not only adds to the natural beauty of the area but also provide a permanent source of water to the wildlife and fine wetland habitat for the aquatic fauna including thousands of migratory waterfowl. The lake is bounded by a huge masonry wall situated along its eastern shore. The area has a typical humid subtropical climate having three distinct seasons winter (November to February), summer (March to June), monsoon (July to October). The temperature variation is 6 to 43 degrees Celsius. The site lies in the sub-basin of river Sindh which falls in the major Ganges basin. The terrain is essentially flat but has gentle undulations. It has predominantly black cotton soil having very fine grain.
The Sakhya Sagar and its surrounding area of Madhav National Park have a mosaic of landforms including open water, marshes, plantations, and a small patch of agricultural lands. The north-eastern part maintains open water and marsh areas almost round the year, whereas in the north-western site, dried out. It is a shallow, alkaline, nutrient-rich freshwater wetland. Hydrological and ecological connectivity supports high biological diversity and habitat heterogeneity found in Wetland. The wetland supports 19 species of fish, 9 species of reptiles, and 19 species of mammals. The wetland is also an important staging ground for 73 species of birds. The wetland is known for its population of mugger crocodiles. The richness of floral and faunal species maintains the biodiversity value of the lake. Sakhya sagar is known for its biodiversity and aesthetic value and is also an important nature tourism spot in the area. The wetland also plays a vital role in nutrient cycling, groundwater recharge, and regulating the micro-climate of the area.

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

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	Sakhya Sagar	1	248

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/LILIOPSIDA	*Lemna perpusilla*	Source of food for fish and waterfowl

Invasive alien plant species

Phylum	Scientific name	Impacts
TRACHEOPHYTA/LILIOPSIDA	*Eichhornia crassipes*	Actual (minor impacts)

Optional text box to provide further information

Total 16 plants species recorded by researcher. Out off 9 species are free floating, 4 species are submerged hydrophytes, 1 species is emergent and 2 species are marginal hydrophytes. The dominant families are Nymphaeaceae, Hydrocharitaceae and Araceae.

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/AVES	*Anas acuta*				IUCN(LC)
CHORDATA/AVES	*Anas clypeata*				
CHORDATA/AVES	*Anas crecca*				IUCN(LC)
CHORDATA/AVES	*Anas penelope*				
CHORDATA/AVES	*Anas querquedula*				
CHORDATA/AVES	*Anas strepera*				
CHORDATA/AVES	*Anastomus oscitans*				IUCN(LC)
CHORDATA/AVES	*Anhinga melanogaster*				IUCN(NT)
CHORDATA/AVES	*Anser anser*				IUCN(LC)
CHORDATA/MAMMALIA	*Axis axis*				IUCN(LC)
CHORDATA/AVES	*Calidris minuta*				IUCN(LC)
CHORDATA/ACTINOPTERYGII	*Channa marulius*				IUCN(LC)
CHORDATA/AVES	*Ciconia episcopus*				IUCN(NT)
CHORDATA/AVES	*Circus aeruginosus*				IUCN(LC)
CHORDATA/AVES	*Dendrocygna javanica*				IUCN(LC)
CHORDATA/ACTINOPTERYGII	*Gibelion catla*				IUCN(LC)
CHORDATA/AVES	*Grus grus*				IUCN(LC)
CHORDATA/ACTINOPTERYGII	*Labeo rohita*				IUCN(LC)
CHORDATA/AVES	*Nycticorax nycticorax*				IUCN(LC)
CHORDATA/AVES	*Pelecanus onocrotalus*				IUCN(LC)
CHORDATA/AVES	*Phalacrocorax fuscicollis*				IUCN(LC)
CHORDATA/AVES	*Philomachus pugnax*				
CHORDATA/AVES	*Pluvialis fulva*				IUCN(LC)
CHORDATA/ACTINOPTERYGII	*Puntius sophore*				IUCN(LC)
CHORDATA/AVES	*Tadorna ferruginea*				IUCN(LC)
CHORDATA/AVES	*Tringa erythropus*				IUCN(LC)
CHORDATA/AVES	*Tringa stagnatilis*				IUCN(LC)

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Aw: Tropical savanna (Winter dry season)

The climate of area is characterized by hot summer and well distributed rainfall during the southwest monsoon season. Monsoon arrives generally in the middle of June and the weather becomes pleasant. January is generally the coolest month. Sometimes in December, the minimum temperature drops down to even as low as about 5 to 6 C. Normal annual rainfall of the district is about 960 mm. The district receives maximum rainfall during the south west monsoon period. Thus about 90 % of the total annual rainfall takes place during the south west monsoon period (June to September) alone. The maximum monthly rainfall takes place during the month of July is about 330 mm. During the monsoon, relative humidity is usually about 81%. Rest of the year the air is generally dry and the relative humidity is less than 50%.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 433

a) Maximum elevation above sea level (in metres): 462

Entire river basin ☐
Upper part of river basin ☐
Middle part of river basin ☑
Lower part of river basin ☐
More than one river basin ☐
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.

Sakhya Sagar Wetland lie in sub basin Sindh of Yamuna basin.

4.4.3 - Soil

Mineral ☑
Organic ☑
No available information ☐

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

Please provide further information on the soil (optional)

The district is covered by Black cotton soil, Sandy loam, Clayey loam soil. Depth of the soil varies from paper-thin to 15m. The central and southern parts of the district are covered by lateritic soil of dark brown to yellowish brown in color. Alluvium is found all along the major and minor rivers, it consists of gravel, silt, sand and pebbles.

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 precipitation	☑	No change
Water inputs from surface water	☐	No change

Water destination

Presence?	
Feeds groundwater	No change
To downstream catchment	No change

Stability of water regime

Presence?	
Water levels largely stable	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 Sakhya Sagar lake at its full reservoir level stores up to 7.78 MCM of water. The maximum depth of lake is 4.50 m.

4.4.5 - Sediment regime

Significant erosion of sediments occurs on the site ☐
Significant accretion or deposition of sediments occurs on the site ☑
Significant transportation of sediments occurs on or through the site ☑
Sediment regime is highly variable, either seasonally or inter-annually ☐
Sediment regime unknown ☐

Please provide further information on sediment (optional):

It is a shallow and large open water wetland ecosystem.

(ECD) Water turbidity and colour	The turbidity 35 in March to 71 NTU. It was turbid during monsoon and green and light green during winter & summer.
(ECD) Light - reaching wetland	Max transparency 69 cm and Min 30 cm.

(ECD) Water temperature	The temperature varied from 18.6ºC to 30.2ºC, The minimum water temperature in month of January and maximum in May.

4.4.6 - Water pH

- Acid (pH<5.5) ☐
- Circumneutral (pH: 5.5-7.4) ☐
- Alkaline (pH>7.4) ☐
- Unknown ☑

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 ☐

4.4.8 - Dissolved or suspended nutrients in water

- Eutrophic ☑
- Mesotrophic ☐
- Oligotrophic ☐
- Dystrophic ☐
- Unknown ☐

(ECD) Water conductivity	Conductivity was recorded minimum during December at 1405 mmhos and September 2006 at 1620 mmohs.

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 site itself: i) broadly similar ○ ii) significantly different ◉

- 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 ☑

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

The lake is surrounded by more than 350 sqkm of the Madhav National Park includes forest and hilly area. The northern side of the area is dense forest and hilly area and Eastern part of the lake covering small rural settlement. Western side of the lake is downstream and dam line and it also part of the National Park. On the shores of Sakhya Sagar lake which edges the forests, is a Boat Club, from where the park visitors can see a number of migratory birds especially in winter, when a large number of migratory waterfowls visit the area. A viewing lodge constructed by the Maharaja called the Shooting Box, is situated above the Sakhya Sagar lake.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Wetland non-food products	Other	Medium
Genetic materials	Medicinal products	Low

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	Medium
Erosion protection	Soil, sediment and nutrient retention	Medium
Climate regulation	Local climate regulation/buffering of change	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Picnics, outings, touring	Medium
Recreation and tourism	Nature observation and nature-based tourism	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	Medium
Scientific and educational	Educational activities and opportunities	Medium

Supporting Services

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
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Medium

Within the site: 1000

Outside the site: 5000

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes ○ No ◉ Unknown ○

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 ☑

Description if applicable

Sakhya Sagar was constructed by the Maharaja's of Gwalior State. The wetland has well defined areas that are ecologically ecosystems having rich biodiversity of domestic species, presence of threatened species, keystone species are play significant role to maintenance of cultural diversity.

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples ☑

Description if applicable

The ecological character of Sakhya Sagar is by inundation regime and linked in food for animals with some livelihood systems. The harvest of fodder material helps keep the overall invasiveness in check and it is an important part of the nutrient and carbon cycles within the wetland system. Excessive dependence of surface water for survival of wetland and wild animal of Madhav National Park.

iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological 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	☑	☑
Local authority, municipality, (sub)district, etc.	☐	☑

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	☐	☑

Other

Category	Within the Ramsar Site	In the surrounding area
No information available	☑	☑

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

(a) Site: Govt. land under the control of Department of Forest and National Park (Forest Department, Govt.of M.P.)

(b) Surrounding area: About 100% of the fringe of lake is Govt. land.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

1. Site Management: Park Director and Forest Department, Government of Madhya Pradesh
2. MP State Wetland Authority-Nodal Department: Environment, Deptt. GoMP, Secretariat: EPCO, Bhopal

Provide the name and/or title of the person or people with responsibility for the wetland:

Park Director and Chief Conservator Forest (CCF), Forest Department, Govt. of Madhya Pradesh

Postal address:

Office of Chief Conservator Forest (CCF),
Madhav National Park
Jhansi Bypass Road, Shivpuri,
Madhya Pradesh 473551
Email: fdmnp.svp@mp.gov.in

Office of Member Secretary, MPSWA & Executive Director,EPCO Environmental Planning and Coordination Organisation (EPCO)
Paryavaran Parisar, E- 5, Arera Colony,
Bhopal 462016 Madhya Pradesh, India

E-mail address: fdmnp.svp@mp.gov.in

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
Housing and urban areas	Low impact		☐	☑

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Drainage	Low impact		☑	☑
Water abstraction	Low impact		☐	☑

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Livestock farming and ranching	Low impact		☐	☑

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Roads and railroads	Low impact		☐	☑

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fishing and harvesting aquatic resources	Low 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		☑	☑

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Dams and water management/use	Low impact		☑	☐
Fire and fire suppression	Low impact		☐	☑

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	Low impact		☑	☐

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Household sewage, urban waste water	Low impact		☑	☐
Agricultural and forestry effluents	Low impact		☑	☑

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Temperature extremes	Low impact		☐	☑
Storms and flooding	Medium impact		☑	☑

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
National Park	Madhav National Park	https://shivpuri.nic.in/en/touri st-place/madhav-national-park/	partly

5.2.3 - IUCN protected areas categories (2008)

Ia Strict Nature Reserve ☐

Ib Wilderness Area: protected area managed mainly for wilderness protection ☐

II 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 ☐

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Partially implemented

Habitat

Measures	Status
Improvement of water quality	Proposed
Habitat manipulation/enhancement	Partially implemented
Hydrology management/restoration	Proposed
Land conversion controls	Partially implemented
Faunal corridors/passage	Proposed

Species

Measures	Status
Control of invasive alien plants	Partially implemented

Human Activities

Measures	Status
Harvest controls/poaching enforcement	Partially implemented
Regulation/management of recreational activities	Partially implemented
Research	Partially implemented
Regulation/management of wastes	Proposed

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 ○ No ◉

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

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water quality	Proposed
Plant community	Proposed
Animal community	Proposed
Birds	Proposed

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

1. Arya, M., and Mishra A.K: Checklist of Wetland Birds of Sakhya Sagar and Madhav Lakes in the Madhav National Park Shivpuri M.P. India. RNI No. UPBIL/2012/55438 VOL.-III, ISSUE-I, August-2014. P: ISSN No. 2231-0045.
2. Arya, M., Rao, R.J and Mishra A.K: Avifaunal occurrence and distribution of Wetland Birds in Sakhya Sagar and Madhav Lakes in the Madhav National Park Shivpuri M.P. India. Journal of Environmental Biology, ISSN 0254, CODEN JBDEP, 19 August 2013.
3. Arya, M., and Mishra A.K: Distribution of Migratory, Resident Migratory and Resident Wetland Birds in Various Locations and Habitats in Sakhya Sagar Lake and Madhav Lake, Shivpuri, (M. P.) India. International Journal of Scientific Research, Volume : 5 Issue : 7 July 2016, ISSN No 2277 – 8179, IF : 3.508, IC Value : 69.48
4. Arya, M., Rao, R.J and Mishra A.K: Ecology and diversity of fish fauna in the Sakhya sagar lake, Shivpuri, Madhya Pradesh, India. Journal of Environmental Research and Development, Vol. 7 No. 2A, October-December 2012
5. Arya, M., Mishra A.K and Bhat M.H: Macrophyte diversity and trophic status of Sakhya Sagar Lake, Shivpuri, Madhya Pradesh, India. Annals of Plant Sciences 7.8 (2018) pp. 2398-2402, ISSN, 2287, 688X.
6. Mishra A.K, Arya, M. and Mathur, R: Limnological Study of Jadhav Sagar Lake, Shivpuri Town, Madhya Pradesh, India. Nature Environment and Pollution Technology, Vol. 9, No. 4 pp. 819-822, 2010

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<6 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
<no file available>

iv. relevant Article 3.2 reports
<no file available>

v. site management plan
<1 file(s) uploaded>

vi. other published literature
<no file available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

Asian openbill in Northern site of wetland (*SWA, 28-09-2021*)

Large open water area (*SWA, 29-12-2021*)

Crocodile basking on the wetland site (*SWA, 29-12-2021*)

6.1.4 - Designation letter and related data

Designation letter
<1 file(s) uploaded>

Date of Designation	2022-01-07