



Ramsar Information Sheet

Published on 22 August 2024

India Tawa Reservoir



Designation date	8 January 2024
Site number	2547
Coordinates	22°30'45"N 78°00'E
Area	20 050,00 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

The Tawa Reservoir has been constructed at the confluence of the Tawa and Denwa rivers. River Malani, Sonbhadra, and Nagdwari are the major tributaries of Tawa reservoir. Tawa River, a left bank tributary originates from Mahadeo hills in Chhindwara district, flows through Betul district and joins river Narmada in Narmadapuram district. It is the longest tributary of river Narmada (172 Km). Tawa Reservoir is situated near Itarsi town. The reservoir was built mainly for irrigation purpose. Although later on it is also being used for power generation and aquaculture. The total submergence area of Tawa reservoir is 20,050 hectares. The total catchment area of the reservoir is 598,290 hectares.

Tawa reservoir comes under the administrative control of Forest department, district Narmadapuram. The reservoir is located inside the Satpura Tiger Reserve and forms the western boundary of the Satpura National Park and Bori Wildlife Sanctuary. Reservoir is important for aquatic flora and fauna especially birds and wild animals. Many rare and endangered species of plants, reptiles and insects are found here. It is an important habitat for many local and migratory birds. It is the largest protected area in the state Madhya Pradesh. The region is endowed with many unique features from ecological, archaeological, historical and forestry point of view.

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 & Environmental Planning and Coordination Organization (EPCO)
Postal address	Madhya Pradesh State Wetlands Authority & Environmental Planning and 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 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	<input type="text" value="2016"/>
To year	<input type="text" value="2023"/>

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	<input type="text" value="Tawa Reservoir"/>
Unofficial name (optional)	<input type="text" value="Tawa Reservoir"/>

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<1 file(s) uploaded>

Former maps	<input type="text" value="0"/>
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Boundaries description

Tawa reservoir was constructed on Tawa and Denwa river confluence, located around 26 kilometers south east of Itarsi Town of Narmadapuram district, Madhya Pradesh. The boundary of the Ramsar site is defined by the full tank level of the reservoir. The annual rainfall 1128 mm of the district. The central Narmada valley and Satpura plateau has around 1100 mm of annual rainfall and is marked by medium black cotton soil. The area is underlaid by Deccan traps which are more than 300 meters thick. The catchment area of Tawa Reservoir is fully protected under the Satpura National Park. The wetland is surrounded by the following:
East: Satpura Tiger Reserve, Madhai
North: Ranipur and Tawa Nagar
South: Sukhtawa
West: Satpura Forest Area

2.2.2 - General location

a) In which large administrative region does the site lie?	<input type="text" value="The Tawa Reservoir is situated in Narmadapuram District in the state of Madhya Pradesh"/>
b) What is the nearest town or population centre?	<input type="text" value="Near Itarsi City"/>

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):

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

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Freshwater Ecoregions of the World (FEOW)	Central Highlands of Narmada Basin

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

<no data available>

Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information

The Tawa Reservoir provides habitat to threatened fish species as per (IUCN 2010) red data book out of 57 species of fish 4 belonging to near threatened (NT) category, 43 belonging to least concern (LC) and 1 belonging to vulnerable (V). Near threatened (NT) 1. Silver carp (*Hypophthalmichthys molitrix*), 2. Mahashir (Tor tor), 3. Pabda (*Ompok bimaculatus*) and 4. Padhin (*Wallago attu*). The Vulnerable (V) species is Common carp (*Cyprinus carpio*). The Avian species like river tern (*Sterna aurantia*), Indian skimmer (*Rynchops albicollis*), common pochard (*Aythya ferina*) & Egyptian vulture (*Neophron percnopterus*). These species are also protected under the Indian Wildlife Act (1972).

Criterion 3 : Biological diversity

Justification

This rich biodiversity supports several species of Insects, Reptiles, Birds and Mammals. The fishes found mainly, C. Mrigal, L. Calbasu, other minor catfishes like Seenghala, Samal and Padhin (local names). The other fish species like Grass Carp and Silver Carp migrated into the reservoir due to flooding in upstream region of the river. More than 280 species of migratory birds like barheaded geese, pochards, teals, storks, herons, skimmers, plovers, pratincoles and local birds such as river tern, openbilled, grey heron, cormorants recorded in the migratory season. The Indian giant squirrel is found only in the Satpura and the Western Ghats. The rare combination of Gray jungle fowl and Red jungle fowl makes this area extremely important for biodiversity.

Tawa reservoir is rich in diversity of aquatic plants which mainly include Typha, Eriocolon, Cyperus, Fimbristylis, several species of sedge and reed, insectivorous plants Drosera and Utricularia are found. Around 52 animals include , tiger, leopard, bear, deer, wild boar, stag, fox, rabbit, jackal, and reptiles like crocodiles, monitor lizards, skinks, turtles, and snakes are found.

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

Optional text box to provide further information

Tawa Reservoir supports a huge congregation of avian species at critical stages of their life cycles. Some of these are the winter migratory bird species such as bar-headed goose (*Anser indicus*), greylag goose (*Anser anser*), northern shoveler (*Spatula clypeata*), northern pintail (*Anas acuta*), gadwall (*Mareca strepera*), Eurasian wigeon (*Mareca penelope*), garganey (*Spatula querquedula*), ruddy shelduck (*Tadorna ferruginea*), common pochard (*Aythya ferina*), Indian darter (*Anhinga melanogaster*), Eurasian Curlew (*Numenius arquata*), white-necked stork (*Ciconia episcopus*), river tern (*Sterna aurantia*), which use this wetland as one of their annual stopover destinations.

Criterion 7 : Significant and representative fish

Justification

Tawa reservoir supports a significant proportion of indigenous fish species like *Cyprinus carpio*, *Labeo rohita*, *Radix Auricularia*, and *Wallago attu*. Total 57 fish species belonging to 35 genera, 13 families and 06 orders have so far been identified from Tawa reservoir. Percentage wise species composition shows Cypriniformes was the dominant order constitutes (59.64%), out of them family Cyprinidae represents (56.14%), family Balitoridae and Cobitidae both represents (1.75%) each, followed by order Perciformes represents (15.78%) including Amabssidae (3.50%), Chhanidae (7.01%), Nandidae (3.50%) while Gobidae represents (1.75%). Order Siluriformes constitute (15.78%) including family Bagaridae (8.77%), Siluridae and Schilbeidae (3.50%) each. Order Synbrnchiformes constitute one family Mastecebembelidae with (3.50%), while Order Beloniformes and Osteoglossiformes both was constituting one family each Belonidae and Notopteridae respectively contributes (1.75%) each. The fish species were also divided into different groups like major carps, catfishes, murrels, spiny eels, feather back etc. In addition to the above, trophic structure indicated dominance of herbivore with 19 fish species (33.33%) followed by carnivore 15 species (26.31%) and omnivore with 16 species (28.07%) while 4 species (7.01%) was not evaluated.

Criterion 8 : Fish spawning grounds, etc.

Justification

Silver carp was recorded for the first time from the reservoir which is a matter of concern in view of its known competition with catla. Fishing started soon after the formation of the reservoir. *Catla catla* (71 %) forms the dominant fishery, followed by *Cirrhinus mrigala* (8.9%), *Labeo rohita* (1.9%) and *Tor tor* (0.6%). Indigenous fishes (Local major and minor groups) formed 7 to 25%. Observations on pre-recruitment of fish indicated that the timely good monsoon inflow in July and higher water level (> 350 m) are main governing factors for successful breeding and recruitment of major carps in this reservoir. *Tor tor* - Mahseer fishes have long been afforded saintly status as 'God's fishes' across their biogeographic range, being revered amongst isolated tribal societies (Gupta et al. 2016). Major caps are a highly fecund fish and the production, supply and consumption are high. Mrigal is tolerate a minimum temperature of 14 °C. . *Catla* and *L. rohita* is most importance fishes in India for stocking.

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																	
ARTHROPODA/ INSECTA	<i>Chironomus salinarius</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Wetland supports important life stages of this insect.
Fish, Mollusc and Crustacea																	
CHORDATA/ ACTINOPTERYGII	<i>Cirrhinus mrigala</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		mportant source of food
CHORDATA/ ACTINOPTERYGII	<i>Cyprinus carpio</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		Vulnerable species. Indo-riverine wetland species that is also used in polyculture. Species is widely distributed in tropical freshwater in Indian Subcontinent.
CHORDATA/ ACTINOPTERYGII	<i>Gibelion catla</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		Important source of food

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								
CHORDATA/ ACTINOPTERYGII	<i>Labeo rohita</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Indo-riverine wetland species that is also used in polyculture. Species is widely distributed in tropical freshwater in Indian Subcontinent.
MOLLUSCA/ GASTROPODA	<i>Radix auricularia</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity
CHORDATA/ ACTINOPTERYGII	<i>Tor tor</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				DD	<input type="checkbox"/>	<input type="checkbox"/>		Important source of fish stock and state fish of Madhya Pradesh
CHORDATA/ ACTINOPTERYGII	<i>Wallago attu</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		Vulnerable species. Indo-riverine wetland species that is also used in polyculture. Species is widely distributed in tropical freshwater in Indian Subcontinent.
Birds																	
CHORDATA/ AVES	<i>Anas acuta</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Anas clypeata</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Anas penelope</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Anas querquedula</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Anas strepera</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Anastomus oscitans</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Anhinga melanogaster</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ AVES	<i>Anser anser</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Anser indicus</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Aythya ferina</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ AVES	<i>Aythya nyroca</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ AVES	<i>Ciconia episcopus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ AVES	<i>Mycteria leucocephala</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity in this wetland.
CHORDATA/ AVES	<i>Netta rufina</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity of the wetland.
CHORDATA/ AVES	<i>Numenius arquata</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ AVES	<i>Rynchops albicollis</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA/ AVES	<i>Sterna aurantia</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input checked="" type="checkbox"/>		The species contributes to the biodiversity of the wetland.
CHORDATA/ AVES	<i>Tachybaptus ruficollis</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Support in biodiversity
CHORDATA/ AVES	<i>Tadorna ferruginea</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		The species contributes to the biodiversity. in this wetland.

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

Tawa Reservoir has been constructed at the confluence of the Tawa and Denwa rivers. The river Malani, Sonbhadra, and Nagdwari are major tributaries of Tawa reservoir. Tawa reservoir comes under the district administration and forest department of Narmadapuram district.

Downstream of the Tawa reservoir the river Tawa merge merges with the Narmada at Bandrabhan, Narmadapuram. It rises from the Satpura range of hills (Mahadeo hills) at an elevation of 762.5 m and runs 169 km before joining the Narmada, upstream of Hoshangabad. Tawa river has a major tributary, the Denwa. The catchment is deeply wooded and receives the highest rainfall in the Narmada valley. The reservoir is located under the Satpura Tiger Reserve and forms the western boundary of the Satpura National Park and Bori Wildlife Sanctuary. Reservoir is very important for aquatic flora and fauna especially birds and wild animals. Tawa Reservoir serves both ecological and human needs.

Tawa is surrounded by lush green forests and serves as a habitat for a variety of wildlife, including several species of birds, fish, and aquatic organisms. It is an important site for birdwatching and supports both resident and migratory bird populations. The reservoir's shoreline and the surrounding areas provide a vital riparian habitat, hosting numerous plant and animal species that depend on the interface between land and water.

Tawa reservoir submergence area is very vast, open water and some are in Denwa and Tawa backwater is shallow and nutrient-rich freshwater wetland. Hydrological and ecological connectivity is supporting high biological diversity and habitat heterogeneity found in Wetland. The area has a typical humid subtropical climate having three distinct seasons: winter (October to March), summer (April to June), monsoon (July to September). The temperature variation is 3 to 40 degrees Celsius.

Its species richness in terms of flora and fauna and presence of rare and threatened species along with species of evolutionary significance makes it unique and call for the effective measures to maintain its biodiversity value. The wetland supports 175 species of terrestrial flora, 06 species of macrophytes, 30 species of fishes (natural and cultured species), 8 species of reptiles and amphibians. The wetland is an important site for congregation of water birds, supporting 130 species of avifauna, including resident and migrant species. Tawa Reservoir provides valuable ecosystem services like fisheries, cultivation of medicinal plants, buffering communities from extreme events as floods and storms, and regulating micro-climate. The local communities also accrue benefit through spiritual enrichment, recreation, education, and cultural religious values.

Recreation and Tourism: While serving ecological functions, Tawa Reservoir is also a popular tourist destination, attracting visitors for boating, camping, and other recreational activities. The coexistence of ecological conservation and tourism is a unique characteristic of this reservoir.

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	Tawa reservoir	1	20050

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/LILIOPSIDA	<i>Lemna minor</i>	Source of food for fish and waterfowl
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Nymphaea nouchali</i>	Act as food source and provides shelter to aquatic species

Invasive alien plant species

Phylum	Scientific name	Impacts
TRACHEOPHYTA/LILIOPSIDA	<i>Eichhornia crassipes</i>	Actual (minor impacts)

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	<i>Dendrocygna javanica</i>				
CHORDATA/AVES	<i>Spilornis cheela</i>				Least concern

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 climate of this region is characterized by hot summer and well distributed rainfall during the southwest monsoon which 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 5.0 to 6.0 C. Normal annual rainfall of the district is about 1100 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 and August. During the monsoon, relative humidity is usually about 98%. Rest of the year the air is generally dry and the relative humidity is less than 24%.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- 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.

Tawa reservoir lie in Narmada 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 medium black soils. These soils are 0.46 to 0.9 meters thick and are rich in lime and lime nodules.

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	<input checked="" type="checkbox"/>	No change
Water inputs from surface water	<input type="checkbox"/>	No change
Water inputs from groundwater	<input type="checkbox"/>	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 Tawa reservoir at its full reservoir level, stores up to 335.397 cubic metres. The maximum depth of lake is 45 meter.

(ECD) Stratification and mixing regime It is a deep water in dam site and shallow water in back water site of Tawa reservoir.

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

(ECD) Water turbidity and colour turbidity 35 in March to 71 NTU. It was turbid during monsoon and green and transparent green during winter & summer.

(ECD) Light - reaching wetland Max transparency 153 cm and Min 20 cm.

(ECD) Water temperature The temperature varies from 18°C to 26°C, The minimum water temperature is in month of January and maximum is in May

4.4.6 - Water pH

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

Please provide further information on pH (optional):

pH value throughout the year varies between 7 and 9. The pH was recorded minimum 7.4 in the September & maximum value was noted 9.1 in the month May of respectively.
 High pH value observed during summer could be due to high photosynthetic activity of phytoplankton and macrophytes shifting the equilibrium towards alkaline. According to the pH value of water, Venkateswarlu (1983) has classified reservoirs into five categories, viz., acidobiotic, acidophilus, indifferent pH, alkaliphilous and alkalibiontic. If these criteria are applied to Tawa Reservoirs, then this reservoir can be classified under the category of alkaliphilous water bodies.

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

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 6000 sqkm of the Satpura National Park includes forest and hilly area. The northern and southern side is rural or semi urban area. Eastern part of the reservoir covering Satpura Tiger Reserve, Madhai. Western side of the lake is Satpura forest area and it also part of the National Park. On the shores of Tawa reservoir, which edges the forests, is a barrage and the rest house. The National park visitors can see a number of migratory birds especially in winter, when a large number of migratory waterfowls visit the area.

East: Satpura Tiger Reserve, Madhai

North: Ranipur and Tawa Nagar

South: Sukhtawa

West: Satpura Forest Area

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	Medium
Fresh water	Water for irrigated agriculture	Medium
Wetland non-food products	Fuel wood/fibre	Low
Genetic materials	Medicinal products	Low

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	Medium
Erosion protection	Soil, sediment and nutrient retention	Medium
Pollution control and detoxification	Water purification/waste treatment or dilution	Low
Climate regulation	Local climate regulation/buffering of change	Medium
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climactic processes	High
Hazard reduction	Flood control, flood storage	Medium

Cultural Services

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

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Soil formation	Sediment retention	Medium
Soil formation	Accumulation of organic matter	Medium
Nutrient cycling	Carbon storage/sequestration	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Medium

Other ecosystem service(s) not included above:

Wildlife fauna especially wild animals are dependent on Tawa reservoir for drinking and other purposes. The local and other tourists are regularly visit in Satpura National Park thought the year. the forest and tourism department, governments of Madhya Pradesh state are operating and maintain the activities.

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

Tawa reservoir was constructed and operated by the Water Resource Department of Madhya Pradesh State. The wetland has well defined areas that are ecologically ecosystems having rich biodiversity of domestic and migratory species are recorded. the presence of threatened and keystone species are play significant role to maintenance of ecosystem and diversity of the reservoir.

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

Description if applicable

The ecological character of Tawa reservoir is by inundation regime and linked in food for wild and other 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 Satpura 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	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Local authority, municipality, (sub)district, etc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Cooperative/collective (e.g., farmers cooperative)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other types of private/individual owner(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Other

Category	Within the Ramsar Site	In the surrounding area
No information available	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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, Government of Madhya Pradesh)
 (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, Government of Madhya Pradesh, Secretariat: Environmental Planning and Coordination Organization (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 Field Director, Satpura Tiger Reserve, Narmadapuram
 Pachmarhi Road, District Narmadapuram,
 Madhya Pradesh 461668, INDIA
 Email - dirsatpuranp@mp.gov.in

Office of Member Secretary, M.P. State Wetland Authority & Executive Director, Environmental Planning and Coordination Organization (EPCO)
 Paryavaran Parisar, E- 5, Arera Colony,
 Bhopal 462016 Madhya Pradesh, India

E-mail address:

ddsatnp.hbd@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	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tourism and recreation areas	Low impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Water abstraction	Low impact	Medium impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Water releases	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Canalisation and river regulation	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Annual and perennial non-timber crops		Low impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Livestock farming and ranching	Low impact	Medium impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Marine and freshwater aquaculture	Low impact	Medium impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Roads and railroads	Low impact	Low impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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	Low impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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	Medium impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Agricultural and forestry effluents	Low impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Geological events

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Unspecified		Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Habitat shifting and alteration		Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Temperature extremes		Medium impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Storms and flooding	Low impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Tiger Reserve and National Park	Satpura Tiger Reserve and National Park, Narmadapuram	https://satpuratigerreserve.org/	whole

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

<no data available>

5.2.4 - Key conservation measures

Habitat

Measures	Status
Catchment management initiatives/controls	Implemented
Habitat manipulation/enhancement	Implemented
Hydrology management/restoration	Partially implemented
Land conversion controls	Implemented

Species

Measures	Status
Threatened/rare species management programmes	Partially implemented
Control of invasive alien animals	Partially implemented

Human Activities

Measures	Status
Fisheries management/regulation	Implemented
Management of water abstraction/takes	Implemented
Livestock management/exclusion (excluding fisheries)	Partially implemented
Harvest controls/poaching enforcement	Implemented
Regulation/management of recreational activities	Implemented
Communication, education, and participation and awareness activities	Proposed
Research	Proposed

5.2.5 - Management planning

Is there a site-specific management plan for the site? No

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

URL of site-related webpage (if relevant):

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No, the site has already been restored

Further information

The site is legally protected under the existing forest and wildlife laws.

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water quality	Proposed
Soil quality	Proposed
Birds	Proposed
Plant species	Proposed

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

1. Joshi, P., & Srivastava, V. K. (2012). Avifaunal diversity of Tawa Reservoir and its surrounding areas of Hoshangabad district (Madhya Pradesh). *International Journal of Plant, Animal and Environmental Sciences*, 2(1), 46-51.
2. Shrivastava, N. P., & Das, A. K. (2000). Ecology and Fisheries of Tawa reservoir. *Bull.*, (100).
3. Jyotishi, A. (2006). Ecological and Institutional Analysis of Inland Fisheries Resource Management: Productivity in the Case of Tawa Reservoir, India. In the Eleventh Conference of the International Association for the Study of Common Property'. Bali, Indonesia. June (Vol. 19, No. 23, p. 2006).
4. Rasool, S., Pandit A. K., Vipin V., Bhat M. S., (2013). Physico-chemical Features of Water in Tawa River of Madhya Pradesh, India. *International Journal of Environment and Bioenergy*, 2013, 6(3): 193-201
5. 4. Chandrasekar K, Jeyaseelan A.T., Dr. Jithendra Jain. Sedimentation study of tawa reservoir through Remote Sensing. 10th National symposium on hydrology with focal theme on Urban hydrology.
- 6.

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)

<1 file(s) uploaded>

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

<no file available>

vi. other published literature

<6 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Back water of Tawa Reservoir (MP SWA, 22-04-2023)



Spotted deer in Tawa Reservoir, Satpura Tiger Reserve (MP SWA, 22-04-2023)



Flock of Painted Stork, back water of Denwa river (MP SWA, 22-04-2023)



Nesting site of River Tern (Birds) in the small Island of Tawa (MP SWA, 23-04-2023)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation