Anlung Pring Protected Landscape

Cambodia

EAAF NETWORK SITE CODE FOR OFFICE USE ONLY:

E	A	A	F	1	4	4

Site Information Sheet on East Asian-Australasian Flyway Network Sites (SIS) – 2017 version

Available for download from http://www.eaaflyway.net/about/the-flyway/flyway-site-network/

Categories approved by Second Meeting of the Partners of the East Asian-Australasian Flyway Partnership in Beijing, China 13-14 November 2007 - Report (Minutes) Agenda Item 3.13

Notes for compilers:

1. The management body intending to nominate a site for inclusion in the East Asian - Australasian Flyway Site Network is requested to complete a Site Information Sheet. The Site Information Sheet will provide the basic information of the site and detail how the site meets the criteria for inclusion in the Flyway Site Network. When there is a new nomination or an SIS update, the following sections with an asterisk (*), from Questions 1-14 and Question 30, must be filled or updated at least so that it can justify the international importance of the habitat for migratory waterbirds.

2. The Site Information Sheet is based on the Ramsar Information Sheet. If the site proposed for the Flyway Site Network is an existing Ramsar site then the documentation process can be simplified.

3. Once completed, the Site Information Sheet (and accompanying map(s)) should be submitted to the Secretariat. Compilers should provide an electronic (MS Word) copy of the Information Sheet and, where possible, digital versions (e.g. shapefile) of all maps.

1. Name and contact details of the compiler of this form *:

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2. Date this sheet was completed *:

DD/MM/YYYY

29/11/2018

3. Country *:

Cambodia

4. Name of the Flyway Network site *:

Accepted English transcription of the Site's name.

Anlung Pring Protected Landscape

5. Map of site *:

The most up-to-date available and suitable map of the wetland should also be appended to the SIS (only in digital format and shape file). The map must clearly show the boundary of the site. Please refer to the "Digitising Site Boundaries in Google Earth" file linked here.

6. Geographical coordinates (latitude/longitude, in decimal degrees) *:

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

Latitude 10° 28.245'N and longitude 104° 31.447'E

7. Elevation *: (in metres: average and/or maximum & minimum)

Elevation of the site is 1-5 m with average elevation of 3 m above sea level.

8. Area *:

The total area of the site, in hectares. If the areas of discrete site units are known, please also list each of these together with the names (or labels) used to identify and differentiate these units.

Total area of Anlung Pring Protected Landscape is 217 hectares

9. General overview of the site *:

A brief (two sentences) summary of the site, mentioning principal physical and ecological functions, and its importance for migratory waterbirds.

Anlung Pring Protected Landscape, also known as the Kampong Trach Important Bird and Biodiversity Area, is one of the main feeding areas for around 20% of the regional population of the globally threatened Sarus Crane *Antigone antigone sharpii* in Indochinese subspecies (VU) on an annual basis during their non-breeding season. The wetland is located in Boeung Sala Khang Tboung commune, Kampong Trach district of Kampot province in southern Cambodia, close to the Cambodia-Vietnam border of Prek Chek-Ha Tien.

The Anlung Pring Protected Landscape includes very important areas of wet grasslands with high density of *Eleocharis*, and *Melaleuca* shrubs, which are common in floodplains of the Lower Mekong Delta of Cambodia.

This wetland is influenced by saline tidal stream of the Giang Thanh River connected to the sea (the Gulf of Thailand) at Ha Tien city in Vietnam. During the dry season, the water quality of the wetland is changed to brackish and saline. The wetland is again converted to a freshwater ecosystem during the raining season. As a result, Anlung Pring enjoys a high level of aquatic productivity that in turns support a large array of migratory birds including the globally threatened Sarus Crane *Antigone antigone sharpii* (Indochinese subspecies, VU), Spotted Greenshank *Tringa guttifer* (EN), Black-tailed Godwit *Limosa limosa* (NT), Garganey *Spatula querquedula*, and other migratory birds during winter.

10. Justification of Flyway Site Network criteria *:

Please provide waterbird count information (with year of latest count) that demonstrates that the site meets the criteria of the Flyway Site Network (Annex 1). That is:

- it regularly supports > 20 000 migratory waterbirds; or,
- it regularly supports > 1 % of the individuals in a population of one species or subspecies of migratory waterbird; or,
- it supports appreciable numbers of an endangered or vulnerable population of migratory waterbird
- it is a “staging site” supporting > 5 000 waterbirds, or > 0.25% of a population stage at the site.

A listing of the populations of migratory waterbirds covered by the East Asian – Australasian Flyway Partnership and the 1% thresholds is attached (Annex 3).

The “staging site” criterion is particularly difficult to apply and application of this should be discussed with the Secretariat. Also note that some species have several populations that are very difficult to distinguish in the field.

The Anlung Pring Protected Landscape constitute one of the most important wintering sites for migratory waterbirds in Cambodia along the East Asian-Australasian Flyway. Species utilising this wetland include both short-distance migratory species e.g. the Sarus Crane, and long-distance migratory birds such as the Black-tailed Godwit, Common Greenshank, Spotted Greenshank, Black-winged Stilt and Garganey. Anlung Pring Protected Landscape meets the following Flyway Site Network criteria:

A2: It supports vulnerable or endangered population of migratory waterbird

No.	Common name	Scientific name	IUCN Redlist status	Number of individual**
1	Sarus Crane	*Antigone antigone sharpii* (Indochinese subspecies)	VU	156
2	Spotted Greenshank	*Tringa guttifer*	EN	9

A6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird

No.	Common name	Scientific name	EAAF Population*	1% of EAAF Population	Max count**	Year
1	Sarus Crane	*Antigone antigone sharpii*	800	8	156 342	2018 2013
2	Spotted Greenshank	*Tringa guttifer*	400 - 600	5	9	2017
3	*Black-tailed Godwit*	*Limosa limosa melanuroides*	139000	1390	2600	2019

*Source: Wetlands International (2018). *Waterbird Population Estimates* Retrieved from wpe.wetlands.org
**Source: Yav et al. (2013). *Anlung Pring Protected Landscape Biodiversity Monitoring Report*, BirdLife International Cambodia Programme, Ly et al. (2018). *Anlung Pring Protected Landscape Biodiversity Monitoring Report*, BirdLife International Cambodia Programme & Ly et al. (2019). *Anlung Pring Protected Landscape Biodiversity Monitoring Report*, BirdLife International Cambodia Programme

11. Wetland Types *:

List the wetland types present (see Annex 2). List the wetland types in order of their area in the Flyway Network site, starting with the wetland type with the largest area.

H - Intertidal marshes
Ss - Seasonal/intermittent saline/brackish/alkaline marshes/pools.

12. Jurisdiction *:

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

Territorial: Government of Cambodia, Kampot Province
Sectoral: Ministry of Environment, Department of Environment of Kampot

13. Management authority *:

Provide the name and address of the local office(s) of the agency (ies) or organisation(s) directly responsible for managing the wetland and the title and/or name and email address/phone number of the person or persons in this office with direct responsibility for managing the wetland.

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14. Bibliographical references *:

A list of key technical references relevant to the wetland, including management plans, major scientific reports, and bibliographies, if such exist. Please list Web site addresses dedicated to the site or which prominently feature the site, and include the date that the Web site was most recently updated. When a large body of published material is available about the site, only the most important references need be cited, with priority being given to recent literature containing extensive bibliographies.

Le Phat Quoi (2015), *Report on Rapid Assessment of Plant Communities in Anlung Pring (Kampot Province) and Boueng Prek Lapouv (Takeo Province), Cambodia,* Wildfowl & Wetlands Trust

Le Phat Quoi & Nguyen Huu Thien (2013) *Report on a Rapid Hydrologic and Vegetation Investigation in Anlung Pring (Kampot Province) and Boueng Prek Lapouv (Takeo Province), Cambodia,* Wildfowl & Wetlands Trust

Ly S., Chum K., & Sek L. (2018). *Anlung Pring Protected Landscape Biodiversity Monitoring Report*, BirdLife International Cambodia Programme

Ly S., Chum K., & Sek L. (2019). *Anlung Pring Protected Landscape Biodiversity Monitoring Report*, BirdLife International Cambodia Programme

Wetlands International (2018). *Waterbird Population Estimates* Retrieved from wpe.wetlands.org

Wildfowl & Wetlands Trust (2013) *Alung Pring Management Plan 2014 to 2018*, Forestry Administration, Wildfowl & Wetlands Trust, Mlup Baitong, International Crane Foundation, & BirdLife International Cambodia Programme

Yav N., Ly S., Ly S., Management and Monitoring Protocol for Beoung Prek Lapouv Protected Landscape, Department of Freshwater Wetland Conservation of Ministry of Environment, BirdLife International Cambodia Programme, and Wildfowl & Wetlands Trust.

Yav N., Ly S., Bou V., & Avent, T. (2017). *Water Quality Monitoring in Anlung Pring, a Protected Landscape in Cambodia,* Department of Freshwater Wetland Conservation of Ministry of Environment, BirdLife International Cambodia Programme, and Wildfowl & Wetlands Trust.

Yav N., Seng K., Nhim S., Chea V., Bou V. & Avent, T. (2017) The impact of shrimp farming on water quality in Anlung Pring, a protected landscape in Cambodia. Cambodian Journal of Natural History, 2017, 49–54.

15. Physical features of the site:

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

The Anlung Pring Protected Landscape is located in the seasonal floodplains of the Lower Mekong within Kampong Trach District, Kampot Province in Cambodia. This wetland is bisected by a road into its northern and southern parts. The northern part of the wetland contains predominantly freshwater wetlands while the southern part of the wetlands is brackish due to regular tidal influence.

The Anlung Pring Protected Landscape is characterized by a combination of lower young alluvial valley and old alluvial plains. Most of the young alluvial valley is extensively flooded in the wet season, but the old alluvial plain is only flooded when the water level is very high. This area was formed by three sediment units: Pleistocene, Late-Pleistocene and Holocene sediments that arose from the weathering of Quaternary sedimentary rocks and consolidated sediments.

The wetland contains acid sulphate soils. The wetland is affected by brackish/saltwater intrusion during dry season. A road and sluice gates have been built and divided the wetland into two sections. The road prevents brackish/saline water intrusion from the south which result different water quality of these two sections (northern and southern part). The northern part is more acidic (pH 2.3, salinity 6.28 g/l) while the southern part is more alkaline and saline (pH 7.2, salinity 26.65 g/l).

In the northern part of Anlung Pring, the water level starts rising from July-August to April-June, peaking in October-November with approximately 1.4 m. In the southern parts of the wetlands, which is connected to the sea, the water level is determined by tides but it reaches its highest level in October-November.
The climate is influenced by the monsoons, which generates rainy and dry season with almost an equal length.

16. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The Anlung Pring Protected Landscape is part of a floodplain that forms along a shallow river meandering in north-south direction. The upstream sections of the wetlands in the north is fed by several branches of smaller rivers. In the wet season, the river is connected to Giang Thanh River about 1.5 kilometres downstream of the wetland and finally drains into the sea at Ha Tien in Vietnam.

17. Hydrological values:

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

The Anlung Pring Protected Landscape serves as a small catchment area from several rivers upstream, and connects downstream (Giang Thanh) to a river that discharges into the Gulf of Thailand. This wetland provides source of water, groundwater recharge, and flood control in the raining season to the surrounding communities.

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Flyway Network site, and the ecosystem services of the site and the benefits derived from them.

The main vegetation type in the Anlung Pring Protected Landscape are seasonally to permanently inundated grasslands with a high density of *Eleocharis* communities, *Melaleuca* shrub, as well as shallow pools which support a large array of aquatic biodiversity. The freshwater-brackish wetlands of Anlung Pring support significant numbers of migratory waterbirds of many species, such as Sarus Crane, Black-tailed Godwit, Common Greenshank, Spotted Greenshank, Black-winged Stilt and Garganey.

Wetlands in the Anlung Pring Protected Landscape also provides several important ecosystem services to local people. It provides a source of freshwater, helps recharge groundwater and control floods during the rainy seasons. The wetlands also provide direct goods to local people, including charcoal and firewood, shrimp, fish and grass for construction and thatching.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

Eleocharis spiralios and *Eleocharis dulcis* are the most significant species of aquatic plants in this wetland. Those species are important as a food source for wintering Sarus Crane. In addition, stands of *Melaleuca* shrubs are important as the roosting grounds for Sarus Crane. There are two species of *Melaleuca* found in Anlung Pring which are *Melaleuca cajuputi* and *Melaleuca leucadendron,* but *Melaleuca leucadendron* is not native to the Mekong Delta and only appear in Australia. However, it was recorded in the wetland of Cambodia (Quoi & Thien, 2013).

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 10. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the SIS.*

(Please add here the species which do not come under sec no 14)

Other noteworthy fauna in Anlung Pring Protected Landscape:

No.	Common name	Scientific name	IUCN Redlist status	Number of individual**
1	Painted Stork	*Mycteria leucocephala*	NT	19
2	Black-winged Stilt	*Himantopus himantopus*	LC	63
3	Garganey	*Spatula querquedula*	LC	1200
4	Watercock	*Gallicrex cinerea*	LC	12
5	Purple Swamphen	*Porphyrio porphyrio*	LC	34
6	Indian Spot-billed Duck	*Anas poecilorhyncha*	LC	19
7	Oriental Darter	*Anhinga melanogaster*	NT	12

**Source: Ly et al. (2018). *Anlung Pring Protected Landscape Biodiversity Monitoring Report*, BirdLife International Cambodia Programme

21. Social, economic and cultural values:

a) Describe if the site has any general social, economic and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The total net annual value of wild goods collection from Anlung Pring Protected Landscape and surrounding area is about one million US dollars, which breaks down into 52% fisheries, 24.5% firewood, 12.5% water released for rice crops, and 11% grass collection.

In addition, the scenery of the landscape with the presence of up to 150 Sarus Crane and thousands of migratory waterbirds during the dry season makes the wetland as an ecotourism attraction (more than 340 national and international tourists visited this site in 2018).

The Sarus Crane have been present in Cambodia for a long time, dating back to the Angkor Era (9th to 15th century) and holds significant cultural value to the people of Cambodia, as clearly demonstrated by carvings and inscriptions of dancing Sarus Cranes in the temple complex of Bayon in Siem Reap. Locally, human communities living around Anlung Pring once believed that when a pair of Sarus Cranes fly over a house, then it signified that young lovers from that house would be on the verge of eloping.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? (Double-click the checkbox to check and choose “Checked” under “Default Value” from “Check Box Form Field Options” window)

If yes, tick the box ❑ and describe this importance under one or more of the following categories:

I. Sites which provide 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. Sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland: ☐

III. Sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples: ☐

IV. Sites where 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: ☐

22. Land tenure/ownership:

a) Within the Flyway Network site:

The Anlung Pring Protected Landscape is owned by the Royal Government of Cambodia and is under the management of the Ministry of Environment.

b) In the surrounding area:

-The lands in surrounding area is owned by local communities or private sector.
-The paddy fields are owned by local people. The shrimp farm located south-east of the wetland is privately owned.
-The local settlements are located in the south-west of the wetland, owned by local communities.

23. Current land (including water) use:

a) Within the Flyway Network site:

The site is now a protected area designated for conservation of Sarus Crane and other migratory birds. As such, the wetlands of Anlung Pring now forms an attractive landscape for nature-based tourism (especially for birdwatchers) during the dry season.

The site also is used by local communities for buffalo grazing, water harvesting, and subsistence collection of wild goods (fish, fire word and grass).

b) In the surroundings/catchment:

The Anlung Pring Protected Landscape is surrounded by shrimp farms, paddy fields, and a few local settlements. Recently, a community-based ecotourism centre has been established in northern part of the wetlands to provide birdwatching and rural tourism experiences to visitors.

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

a) Within the Flyway Network site:

A dirt road was built across the northern part of the wetlands in 1984. Subsequently it was damaged due to a severe flood in 2000. This road was repaired in 2007 and some sluice gates were installed to control and mitigate flood damage.

According to local village elders and the commune chief, the area was mostly dominated by Nipa palm (*Nypa fruticans*) in 1965 and local people recalled hearing the calls of Sarus Cranes (on migration) as they

flew over but the birds were then never known to land. In 2000, a severe flood destroyed all of the Nipa palm, and opened up the wetlands. Subsequently, a group of 6 - 7 Sarus Cranes visited the site in 2001. This later increased to 47 Sarus Cranes in 2003. These observations suggested a major change in original ecological characteristics of the site. As a result of the wetlands being more open and shrubbier, this then became a preferred feeding ground for the cranes.

b) In the surrounding area:

Shrimp farming expansion is emerging as a major threat to the site. Often, these farms do not take adequate measures to mitigate or prevent their wastewater discharge, which could then contaminate the wetlands.

The usage of chemical pesticides and fertilisers by the paddy fields around the wetland can impact its ecological integrity and alter its biological characteristics. Human settlements around the wetland may be seen as a minor threat, but which can increase stresses on the natural resources of Anlung Pring Protected Landscape, cause disturbance to wildlife and increase pollution.

The recent construction of an access road alongside the wetland in the eastern edge is also expected to create more disturbance and worsen the pollution problem affecting the wetland.

25. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Flyway Network site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

Anlung Pring is classified as a National Protected Area. The boundary proposed Flyway Network Site is entirely as same as the boundary of Protected Area.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate, see Annex 3):

Ia ☐; Ib ☐; II ☐; III ☐; IV ☒; V ☒; VI ☐; N/A ☐

c) Does an officially approved management plan exist; and is it being implemented?

Yes, there is a 5 years management plan (2014 to 2018) for Anlung Pring which was developed under authority of the Forestry Administration of Ministry of Agriculture, Forestry and Fisheries on the wetland. However, as the management authority of the wetland has been transferred to Ministry of Environment since 2016, the management plan needs to be updated.

If yes, is it being implemented? If no, is one being planned?

The management plan is partly being implemented.

d) Describe any other current management practices:

The current management practices at Anlung Pring Protected Landscape include:

- A community-based ecotourism structure is being developed to support and strengthen the local communities' involvement in protection of Sarus Crane.
- A biodiversity monitoring system is in place to provide data on the status of migratory birds.
- A hydrology monitoring system is developed to support decision-making.
- Law and regulation enforcement are being practiced in the site. A management station is constructed near the wetland to support activities of environmental rangers.

Those management practices are conducted by Ministry of Environment in collaboration with provincial and local authorities, with technical and financial support of NGO partners.

26. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

- An environmentally-friendly agriculture plan is being discussed among the wetland conservation experts as a strategy to improve the livelihood of communities while increasing their involvement in conservation. One action may be to introduce sustainable means of rice farming that is sensitive to the needs of the Sarus Crane and other wetland biodiversity through locally produced rice that is branded with the Sarus Crane.
- Although some waste collection and management activities are being implemented, there is no functional and effective waste management system in place.
- There is an intent to consider a wider level of management in floodplain scale. It will significantly increase the effectiveness of conservation and management efforts.

27. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

The Sarus Crane census and biodiversity survey is implemented on an annual basis. A monitoring protocol was published in 2017 to provide a framework for research and data collection in the site.

The ranger station in Anlung Pring wetland is being used to facilitate these studies, especially for biodiversity monitoring, birdwatching tourism and other field research activities. However, the research facilities and the technical capacity to conduct quality research needs to be improved.

28. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

A community-run tourism centre or visitor's centre has been established and is now managed by the local community, which provides information and facilities to visitors. This centre is also used to conduct CEPA activities targeting local communities around the wetlands.

"Welcome to the birds" festival is celebrated to raise local awareness. In this festival, local community and school children participate in various activities from cleaning the site to various games and competitions. The "World Migratory Bird Day" is also celebrated in Anlung Pring. Nevertheless, there is still considerable scope and room to improve CEPA activities and facilities in the area.

29. Current recreation and tourism:

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

A community-based ecotourism programme has been established and is managed by local communities around the Anlung Pring Protected Landscape; however, the number of visitors is currently less than expected. In parallel with the fact that the site is quite far from nearby cities popularly visited by tourists (e.g. Kep and Kampot), the ecotourism facilities also need to be improved. This includes establishment of eco-lodges and a wetland education centre, installation of low impact birdwatching hides, and creating a wetland trail to support communities' nature-based tourism services. Nevertheless, any improvement in tourism infrastructure as well as the increase in number of visitors should be carefully managed to avoid any future disturbance to the wetlands and wildlife.

30. Threats *:

Which of the following threats is present historically – when the threat stopped but the effects are still there (H), currently (C) or potentially (P)?

	Historically	Currently	Potentially
Residential and commercial development			
housing and urban areas	☐	☐	☐
commercial and industrial areas	☐	☐	☐
tourism and recreation areas	☐	☐	☒
Agriculture and aquaculture			
annual and perennial non-timber crops	☐	☐	☒
wood and pulp plantations	☐	☐	☐
livestock farming and ranching	☐	☒	☐
marine and freshwater aquaculture	☐	☒	☐
Energy production and mining			
oil and gas drilling	☐	☐	☐
mining and quarrying	☐	☐	☐
renewable energy	☐	☐	☐
Transportation and service corridors			

roads and railroads	☐	☒	☐
utility and service lines	☐	☐	☒
shipping lanes	☐	☐	☐
flight paths	☐	☐	☐
Biological resource use			
hunting and collecting terrestrial animals	☐	☐	☒
gathering terrestrial plants	☐	☐	☒
logging and wood harvesting	☐	☐	☐
fishing and harvesting aquatic resources	☐	☒	☐
Human intrusions and disturbance			
recreational activities	☐	☐	☒
war, civil unrest and military exercises	☐	☐	☐
work and other activities	☐	☐	☒
Natural system modifications			
fire and fire suppression	☐	☐	☐
dams and water management/use	☐	☒	☐
other ecosystem modifications	☐	☐	☒
Invasive and other problematic species and genes			
Invasive non-native/alien species	☐	☐	☒
problematic native species	☐	☐	☐
introduced genetic material	☐	☐	☐
Pollution			
household sewage and urban waste water	☐	☐	☒
industrial and military effluents	☐	☐	☐
agricultural and forestry effluents	☐	☒	☐
garbage and solid waste	☐	☒	☐
air-borne pollutants	☐	☐	☐
excess energy	☐	☐	☐
Geological events			
volcanoes	☐	☐	☐

earthquakes/tsunamis	☐	☐	☐
avalanches/landslides	☐	☐	☐
Climate change and severe weather			
habitat shifting and alteration	☐	☐	☒
droughts	☐	☐	☒
temperature extremes	☐	☐	☒
storms and flooding	☐	☐	☒

Please write here any additional threats and comments/queries you have on the threats.

Annex 1: Criteria for the inclusion of sites in the Flyway Site Network

(From the Partnership Text)

To be considered for inclusion in the Flyway Site Network, this Partnership adopts the following criteria:

a. Convention on Wetlands (Ramsar, Iran, 1971) criteria for internationally important sites for migratory waterbirds. That is:

   Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

   Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

   Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

b. The staging criteria as applied under the Asia - Pacific Migratory Waterbird Conservation Strategy. That is:

   i. A staging site should be considered internationally important if it regularly supports 0.25% of individuals in a population of one species or subspecies of waterbirds on migration.

   ii. A staging site should be considered internationally important if it regularly supports 5,000 or more waterbirds at one time during migration.

c. Under exceptional circumstances a site can be nominated if it supports migratory waterbirds at a level or stage of their life cycle important to the maintenance of flyway populations. Justification of such nominations will be considered by the Partnership on a case by case basis.

Annex 2: Ramsar Classification System for Wetland Type

The codes are based upon the Ramsar Classification System for Wetland Type as approved by Recommendation 4.7 and amended by Resolutions VI.5 and VII.11 of the Conference of the Contracting Parties. The categories listed herein are intended to provide only a very broad framework to aid rapid identification of the main wetland habitats represented at each site.

To assist in identification of the correct Wetland Types to list in section 19 of the RIS, the Secretariat has provided below tabulations for Marine/Coastal Wetlands and Inland Wetlands of some of the characteristics of each Wetland Type.

Marine/Coastal Wetlands

A -- **Permanent shallow marine waters** in most cases less than six metres deep at low tide; includes sea bays and straits.

B -- **Marine subtidal aquatic beds**; includes kelp beds, sea-grass beds, tropical marine meadows.

C -- **Coral reefs**.

D -- **Rocky marine shores**; includes rocky offshore islands, sea cliffs.

E -- **Sand, shingle or pebble shores**; includes sand bars, spits and sandy islets; includes dune systems and humid dune slacks.

F -- **Estuarine waters**; permanent water of estuaries and estuarine systems of deltas.

G -- **Intertidal mud, sand or salt flats**.

H -- **Intertidal marshes**; includes salt marshes, salt meadows, saltings, raised salt marshes; includes tidal brackish and freshwater marshes.

I -- **Intertidal forested wetlands**; includes mangrove swamps, nipah swamps and tidal freshwater swamp forests.

J -- **Coastal brackish/saline lagoons**; brackish to saline lagoons with at least one relatively narrow connection to the sea.

K -- **Coastal freshwater lagoons**; includes freshwater delta lagoons.

Zk(a) – **Karst and other subterranean hydrological systems**, marine/coastal

Inland Wetlands

L -- **Permanent inland deltas**.

M -- **Permanent rivers/streams/creeks**; includes waterfalls.

N -- **Seasonal/intermittent/irregular rivers/streams/creeks**.

O -- **Permanent freshwater lakes** (over 8 ha); includes large oxbow lakes.

P -- **Seasonal/intermittent freshwater lakes** (over 8 ha); includes floodplain lakes.

Q -- **Permanent saline/brackish/alkaline lakes**.

R -- **Seasonal/intermittent saline/brackish/alkaline lakes and flats**.

Sp -- **Permanent saline/brackish/alkaline marshes/pools**.

Ss -- **Seasonal/intermittent saline/brackish/alkaline marshes/pools**.

Tp -- **Permanent freshwater marshes/pools**; ponds (below 8 ha), marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season.

Ts -- **Seasonal/intermittent freshwater marshes/pools on inorganic soils**; includes sloughs, potholes, seasonally flooded meadows, sedge marshes.

U -- **Non-forested peatlands**; includes shrub or open bogs, swamps, fens.

Va -- **Alpine wetlands**; includes alpine meadows, temporary waters from snowmelt.

Vt -- **Tundra wetlands**; includes tundra pools, temporary waters from snowmelt.

W -- **Shrub-dominated wetlands**; shrub swamps, shrub-dominated freshwater marshes, shrub carr, alder thicket on inorganic soils.

Xf -- **Freshwater, tree-dominated wetlands**; includes freshwater swamp forests, seasonally flooded forests, wooded swamps on inorganic soils.

Xp -- **Forested peatlands**; peatswamp forests.

Y -- **Freshwater springs; oases**.

Zg -- **Geothermal wetlands**

Zk(b) – **Karst and other subterranean hydrological systems**, inland

Note: "**floodplain**" is a broad term used to refer to one or more wetland types, which may include examples from the R, Ss, Ts, W, Xf, Xp, or other wetland types. Some examples of floodplain wetlands are seasonally inundated grassland (including natural wet meadows), shrublands, woodlands and forests. Floodplain wetlands are not listed as a specific wetland type herein.

Human-made wetlands

1 -- **Aquaculture** (e.g., fish/shrimp) **ponds**

2 -- **Ponds**; includes farm ponds, stock ponds, small tanks; (generally below 8 ha).

3 -- **Irrigated land**; includes irrigation channels and rice fields.

4 -- **Seasonally flooded agricultural land** (including intensively managed or grazed wet meadow or pasture).

5 -- **Salt exploitation sites**; salt pans, salines, etc.

6 -- **Water storage areas**; reservoirs/barrages/dams/impoundments (generally over 8 ha).

7 -- **Excavations**; gravel/brick/clay pits; borrow pits, mining pools.

8 -- **Wastewater treatment areas**; sewage farms, settling ponds, oxidation basins, etc.

9 -- **Canals and drainage channels, ditches.**

Zk(c) -- **Karst and other subterranean hydrological systems**, human-made

Annex 3: IUCN Protected Areas Categories System

IUCN protected area management categories classify protected areas according to their management objectives. The categories are recognized by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas and as such are increasingly being incorporated into government legislation.

Ia Strict Nature Reserve

Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values.

Ib Wilderness Area

Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park

Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or Feature

Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

IV Habitat/Species Management Area

Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/ Seascape

A protected area where the interaction of people and nature over time has produced an area of distinct charcter with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected area with sustainable use of natural resources

Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems.