Designation date: 23/06/99 Ramsar Site no. 999

# Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

Available for download from http://www.ramsar.org/ris/key\_ris\_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

# Notes for compilers:

- 1. The RIS should be completed in accordance with the attached Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands. Compilers are strongly advised to read this guidance before filling in the RIS.
- 2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 14, 3rd edition). A 4th edition of the Handbook is in preparation and will be available in 2009.
- 3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form: Dr. Srey Sunleang,	FOR OFFICE USE ONL	Υ.
Director, Department of Wetlands and Coastal Zones, Ministry of Environment, #48 Preah Sihanouk Blvd., Tonle Bassac, Chamkar Morn, Phnom Penh, Cambodia Tel: (855) 77-333-456 Fax: (855)-23-721-073 E-mail: <a href="mailto:kampongspeu@yahoo.com">kampongspeu@yahoo.com</a> 2. Date this sheet was completed/updated:	Designation date	Site Reference Number
17 April 2012 3. Country:		
Cambodia		
4. Name of the Ramsar site:	uages (English, French or	
The precise name of the designated site in one of the three official lang Alternative names, including in local language(s), should be given in paren		me.
	theses after the precise na	

6. For RIS updates only, changes to the site since its designation or earlier update:

b) Updated information on an existing Ramsar site  $\square$ 

# a) Site boundary and area

The Ramsar site boundary and site area are unchanged: $\square$
or  If the site boundary has changed:  i) the boundary has been delineated more accurately  ii) the boundary has been extended ; or  iii) the boundary has been restricted**
and/or
If the site area has changed:  i) the area has been measured more accurately ii) the area has been extended □; or iii) the area has been reduced** □
** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.
b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:
The ecosystems of the Mekong and its tributaries will undoubtedly be seriously affected by upstream dams (already existing ones and such being in the planning phase). The change of the rivers hydrological system through dams will dramatically damage the still existing fish populations with very disastrous effects for the livelihood situation of the human communities along the rivers which depend to a very large degree on the protein and income generated through fishing those rivers. Seven dams have been proposed for the mainstream of the Mekong within Cambodia alone. Others have already been built in Mekong tributary rivers (e.g. the Yali Falls dam on the Sesan River).
7. Map of site: Refer to Annex III of the Explanatory Note and Guidelines, for detailed guidance on provision of suitable maps, including digital maps.
a) A map of the site, with clearly delineated boundaries, is included as: i) a hard copy (required for inclusion of site in the Ramsar List): ☑;
ii) an electronic format (e.g. a JPEG or ArcView image) ☑;
iii) a GIS file providing geo-referenced site boundary vectors and attribute tables .

# b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The boundary remains unchanged, spanning two districts of Thalabowat and Stung Treng within Stung Treng province. The jurisdiction is under the supervision of the Stung Treng provincial authority and the area can be accessed by water way and road.

The current border of the wetland has been demarcated with limited ecological justification and a number of critical biodiversity areas lay beyond the site boundaries. On-site physical markers have been planned for the northern and southern boundaries although further physical demarcation has not occurred to allow for potential inclusion of these areas in the future (Lopez, A. (Ed.) (2007).

# **8. Geographical coordinates** (latitude/longitude, in degrees and minutes):

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.

Approximate center coordinate: 13° 44' 04" N, 106° 00' 00" E

#### 9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

The Stung Treng Ramsar Site is located in the north of the country, approximately 450km from the Capital City of Phnom Penh, with its northern boundary approximately 4km from the Laos border. The area is under administrative supervision of Stung Treng province and its southern boundary is located just 5km from Stung Treng town. The site can be accessed through the water way or via national road no. 13 that connects Stung Treng province to the Laos border.

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

Approximately 50m asl,

11. Area: (in hectares)

14,600 ha

# 12. General overview of the site:

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

This Ramsar Site encompasses approximately 40km of the Mekong River north of Stung Treng. The diversity of wetlands at the site is unique for the biogeographic region because it encompasses wide stretches of braided river, harbouring a mosaic of vegetated Channel Islands, rocky outcrops, sandbars and mudflats that can be subject to inundation or total submergence depending on season and water level. The topography is diverse with a variation of at least 10m in elevation throughout the site. The topography of the riverine environment is unique encompassing deep pool areas that can be over 70m in depth. This channel-island type river system provides very localised habitat and is a unique feature of the Mekong River system.

Areas within this stretch of river remain as some of the least disturbed stretches of large river ecosystems within Southeast Asia; though also remain one of the least biologically known areas of the region (Timmins 2006). The site's unique geomorphology provides localised habitats during inhospitable seasonal events. The extensive and largely undisturbed channel islands provide important refuge and a food source for fish species during times of high flows (MRC 2010) while the area's deep pools allow refuge for aquatic species, including the Irrawaddy Dolphin (*Orcaella brevirostris*), when the river is low. The deep pools are also important refuge areas for migratory fish populations and have significant, wider impacts for fisheries downstream (MRC 2006).

# 13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the Explanatory Notes and Guidelines for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked

	$\checkmark$	$\checkmark$		$\checkmark$				$\checkmark$	
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# 14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

# **Criterion 1:**

The area provides a unique example of wetlands in the middle stretches of the Mekong River biogeographic region, encompassing a wide area of seasonally exposed vegetation colonies. The wetland mosaic at the site lends itself to ecological diversity due to its number of different habitats ranging from permanently and seasonally flooded environments as well as Dry Dipterocarp Forest (DDF) away from direct influence of the river itself. The area is distinctive in its fluctuating elevation giving rise to areas of swift rapids, falls and deeper pools. Areas within the site remain as some of the least disturbed stretches of large river ecosystems within Southeast Asia; though also remain one of the least biologically known areas of the biogeographic region (Timmins 2006).

#### Criterion 2

English Name	Scientific Name	IUCN Status	CITES Status	CMS	National Status
Fish					
Giant Mekong Catfish	Pangasianodon gigas	CR	I	I	Endange r
Small Scaled Mud Carp	Cirrhinus microlepis	VU			N.C.N.S
No English name (Local name: <i>Trei Papean</i> )	Hypsibarbus lagleri	VU			N.C.N.S
No English name (Local name: <i>Trei Kanchoss</i> kdoang)	Mystus bocourti	VU			N.C.N.S
Elephant Ear Gourami	Osphronemus exodon	VU			Endange r
Pangasid-catfish	Pangasius sanitwongsei	CR			N.C.N.S
Yellow Tail Brook Barb	Poropuntius deauratus	EN			N.C.N.S
Mekong herring	Tenualosa thibaudeaui	VU			Endange r
Reptiles					
Siamese Crocodile	Crocodylus siamensis	CR	I		VU
Southeast Asian Soft- shelled Turtle	Amyda cartilaginea	VU	II		VU
Bird					
Green Peafowl	Pavo muticus	EN	II		Rare
White-winged Duck	Cairina scutulata	EN	I		Endange r
Masked Finfoot	Heliopais personatus	EN			Rare
White-rumped Vulture	Gyps bengalensis	CR	II	II	Rare
Long- billed Vulture	Gyps indicus	CR	II		Rare
Red-headed vulture	Sarcogyps calvus	CR	II	II	Rare
White-shouldered Ibis	Pseudibis davisoni	CR			Endange r
Lesser Adjutant	Leptoptilos javanicus	VU			Rare
Greater Adjutant	Leptoptilos dubius	EN			Endange r
Mammal					
Eld's Deer	Rucervus eldii	EN	I		Endange r

English Name	Scientific Name	IUCN Status	CITES Status	CMS	National Status
Mekong River Irrawaddy Dolphin	Oracella brevirostris	VU	I		Endange r
Smooth-coated Otter	Lutrogale perspicillata	VU	II		Rare

Note: N.C.N.S means No Classification on National Status data (Prime Minister decree # 123 OrNoKro BorKor 2009)

# Criterion 4

Stung Treng Ramsar site is a resident and breeding habitat of a least 20-30 White-shouldered Ibis *Pseudibis davisoni* (Globally Critically Endangered species). White shouldered ibis on molluscs species on mud or sand in rivers. *Trapaengs* are also an important foraging site of this ibis species during breeding season.

#### **Criterion 8**

The deep pool areas of the site provide critical refuge for migratory fish species (e.g., Trey real Henicorhynchus siamensis, Trey real awng kam Henicorhynchus cryptopogon and Trey Riel tob: Henicorhynchus siamensis) during the dry season. Inundated islands also provide an important food source and refuge area for fish during peak flows in the wet season.

**15. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

# a) biogeographic region:

Mekong River Region

b) biogeographic regionalisation scheme (include reference citation):

WWF Ecoregions 2009.

#### 16. 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 site is part of the Mekong River and is therefore subject to the seasonal hydrology of the region. During the wet season (May-October), areas of the riparian forest become inundated creating a seasonal flooded forest. Water currents are stronger in the northern section where the riverbed is shallower, giving rise to rapids, riffles and gravel beds. The southern section comprises a number of deep pools that reach depths of over 70m in some areas. During the dry season water levels are significantly lower with only the deeper pools and channels providing relatively strong flows. Along with permanently exposed channel islands, a mosaic of vegetated islands is exposed during the dry season, providing alternative habitat for a great number of local bird species and a food source for fish when inundated in the set season. Recent studies in the Mekong Delta show the presence of persistent organic pollutants in sediment and aquatic organisms (phytoplankton, crustaceans and fish) with DDT as the main contaminant. Elevated levels of heavy metals have been found in areas with heavy boat traffic and/ or high population densities, mainly downstream of Phnom Penh and in the Mekong Delta. The concentrations of nutrients at all mainstream monitoring stations are low apart from some stations in the Mekong Delta, where levels of some nutrients are relatively high, most likely due to high population densities and intensive agriculture. Trends in both phosphorus and nitrogen levels in the delta indicate deteriorating water quality. Ammonium concentrations along the river remain well within national standards but increased significantly between 2000 and 2008, with elevated concentrations found in the upper parts of the basin close to confluences with tributaries, Vientiane and on the Cambodian side of the Bassac River (MRC 2010). The pH range varied between 7.1 to 8.6 and the electrical conductivity (EC) varied between 50 to 300 µS/cm (MRC 2006).

Due to the varying nature of the site's underlying geology such as: soil types, soil structures, soil pH, soil substrates or soil compounds, hydrology, chemical in the water, floods, rain fall, climate and the organisms inhabited in the area, the area comprises a diverse range of hydrology systems giving rise to unique aquatic and riverine habitats. Shallow gravel bed and riffle sections in the north of the site increase water aeration and provide good spawning areas for fish (MRC 2010). The soil substrates predominantly of sand, rock or pebbles, bank substrates are akin to terrestrial soils and generally very silty (MPSTRS 2007). Related to the pH soil of Mekong was classified into four major groups:

- -Shallow acid lithosoils from sandstone to 15 cm, pH: 4.5-6.5, poor soil;
- -River alluvial soil, pH: 4.5-6.5, fertile;
- -Brown alluvial soil, pH: 5.0-6.8, fertile;
- -Red-yellow podzolicsoil, pH: 4.2-6.8, poor; (IWCCISTW 2011)

Average annual rainfall is approximately 1400mm, mostly falling in the wet season (see figure 1 in appendix 1). Temperatures peak during March and April and are at their lowest during December and January. The minimum temperature is 16.3 degree celsius and the maximum temperature is 34.8 degree celsius as shown in figure 2 in appendix 1.

#### 17. Physical features of the catchment area:

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

The Stung Treng Ramsar Site covers an approximately 37 km long stretch of the Mekong river in Stung Treng Province northern Cambodia. In this stretch the Mekong is very broad and has many islands. The mean elevation of the Mekong drops by about 10 m over this distance. The Ramsar site has two sections with many islands, divided by a single wide, open water channel in the region of Koh Key (IUCN 2007).

In the central stretch of site, the river is braided into several channels, which run through a mosaic of rocky outcrops, sand bars, mudflats and islands with seasonally inundated vegetation. The scattered rocky islets are covered with a distinct shrubby vegetation type. The flow of water is relatively slow in the southern part, compared to the northern area of the site. Several rapids occur in some of the northern areas where the river bed is shallow. Natural rocky embankment is present in a few locations in the central region, interspersed with exposed vertical banks. Deep pools are also present ( IUCN 2007). The site is influenced by the area's tropical climate. Soil types are mixture of sand pebbles and rock with riparian areas influenced by sedimentary deposits.

#### 18. Hydrological values:

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

The hydrology of the area varies considerably across the site. The river system plays an important role in flood mitigation (see figure 3 in appendix 1) while the surrounding riparian and Dry Dipterocarp Forest (DDF) areas support a number of *Viels* (grasslands) and *Trapaengs* (pools) that dry and fill depending on season.

At the lower section of the area, in proximity to Stung Treng town and just outside of the site boundary, the 'three S' rivers, Sesan, Sekong and Sre Pork Rivers converge, contributing approximately 22% of flow to the Mekong.

# 19. Wetland Types

#### a) presence:

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

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

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp Ts • U • Va •

$$Vt \cdot W \cdot Xf \cdot Xp \cdot Y \cdot Zg \cdot Zk(b)$$

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

# b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

The dominant wetland type is 'Type M' of the permanent river system of the Mekong followed by 'Type O'.

# 20. General ecological features:

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

Aquatic habitats of the site vary considerably depending on season. During the dry season, three general forms arise: 1) long, narrow sections (<100m), fast flowing with depths of up to 15m; 2) wider, shallower areas with slower currents; and 3) deep pool areas up to 77m in depth with slower currents (Timmins 2006). The dry season also exposes isolated pools that vary in size, depth and substrate. Some remain throughout the dry season while others shrink and dry up completely. During the wet season, surface flows become much more uniform, though are obviously still influenced by channel and river bed depths and substrates, as well as the influence of submerged vegetation.

**Sand Features** are common throughout the site, often baron, though can be vegetated by a grass layer or varying degrees of mostly herbaceous vegetation depending on available substrate.

**Channel Woodlands** are the most unique habitat of the site. Tree species present sustain seasonal submergence and strong currents to eventually rice above the seasonal peak flood level. Taller tree species of up to 25m exist in areas of weaker currents and are dominated by *Anogeissus*, *Ficus* and *Acacia* species.

**Channel Bushlands** are dominated by shrub species and are often totally submerged when waters are at peak flows. Plant species present in these habitats will generally loose their leaves during inundation and rapidly regenerate when waters recede. These islands are often exposed for the shortest periods (five months or less).

**Riparian Vegetation** areas have been disturbed and often heavily modified by human activities and agricultural conversion. Habitats include woodland sections as well as flooded grasslands in a few isolated areas where wet season waters briefly exceed the channel edges.

**Terrestrial Forests** predominantly consist of mixed deciduous and dipterocarp forest with some instances of semi-evergreen forest also present. These areas are generally out of direct influence of the river system.

Viels (abundance rice fields or small grass land) and *Trapeangs* (pools) are scattered throughout the area and highly influenced by season. Terrestrial viels are generally lower in height than grasslands closer to the river, while trapeangs will mostly dry out at some stage during the dry season. Trapeangs are generally less than 50m in diameter, approximately 2m deep and are thought to be the product of sustained grazing by large mammal species. Nowadays, domestic cattle or buffalo maintain the turbid nature of the pools and are likely to be important in sustaining their function.

# 21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present* – these may be supplied as supplementary information to the RIS.

The important forest communities in the area are locally known as 'An Chenh" and considered to contain the only species of tall trees in the area, however most areas of commercially valuable timber species at the site have already been removed (Allan et. al 2008). The dominant tall trees on the channel areas are extremely resilient to the harsh conditions of the site and have seemingly site specific adaptation measures. *Anogeissus* spp. are striking in appearance with their branches swept horizontally with the flow of the current. These trees support abundant mistletoe growth and seem to be the predominant host tree for strangler figs (Timmins 2006). *Acacia harmandiana* dominate sandier substrates that are subject to relatively long periods of seasonal drying and will experience significant leaf drop towards the end of the dry season.

The exotic *Mimosa pigra* is present at the site, favouring mostly disturbed areas of river bank where the natural vegetation has been removed. It is also present, sometimes as the sole species, on seasonally exposed sand islands though only appear to be one season old. This suggests the species does not cope with inundation and is therefore having minimal impact on vegetation dynamics of the sand features (Timmis 2006).

#### 22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present* – these may be supplied as supplementary information to the RIS.

Stung Treng Ramsar Site is significant for supporting the Mekong River Irrawaddy Dolphin. The IUCN report in 2008 mentioned that this site supports at least 130 species of fish (see annex 2), of which at least 50 are of socio- economic importance.

In 2006, the Mekong Wetland Biodiversity Programme conducted biodiversity assessment at this site and confirm the Site as important for its biodiversity. At least 95 bird species have been recorded by Darwin project team during three weeks field assessment in 2007 (see Annex 3). Apart from the species mentioned in criterion 2, following key species also listed: River Tern Sterna aurantia (LC), Grey-Headed Fish Eagle Ichthyophaga ichthyaetus (NT), Oriental Darter Anhinga melanogaster (NT), Mekong Wagtail Motacilla samveasnae (LC); Spot-billed Pelican Pelecanus phillippensis (NT), and Great Thick-knee Esacus recurvirostris. This assessment estimated that this site is a resident and breeding habitat of at least 20-30 White-shouldered Ibis (Globally Critically Endangered species).

There is inadequate data on mammal species in this site. The assessment in 2006 recorded a number of large mammal population in this Ramsar Site. Long-tailed Macaque *Macaca fascicularis* and Silvered Leaf Monkey *Trachypithecus cristatus* were confirmed present but in low numbers. Eld's Deer *Cervus eldii* was also confirm presence in a small area of floodplain grassland in the northeast of site. The key mammal species were recorded including Sumbar (Sambar?) *C. unicolor*, Dhole *Cuon alpinus*, Pileated Gibbon *Hylobates pileatus*, Red Muntjac *Muntiacus muntjak*, Black Giant Squirrel *Callosciurus finlaysonii*, and Siamese Hare *Lepus peguensis*.

Eleven species of molluscs were found in the Ramsar Site. Kchao Ksach *Mekongia swainsoni flavida* and Kchao Thmore *Filopaludina martensi* species were very common in the channel woodland and sand bar. Golden Apple snail *Pomacea canaliculata* and Kchao Romors *Filopaludina martensi cambodjensis* are very common, found in trapaengs (IUCN 2008).

Siamese crocodiles are still present at this site but the population is likely depressed. The other reptile species were also listed: Bengal Monitor *Varanus bengalensis*, Asian Giant Soft-shelled Turtle *Pelochelys cantorii*, and *Asian* Soft-shelled Turtle *Amyda cartilaginea* (IUCN 2006 and 2008).

# 23. Social and cultural values:

a) Describe if the site has any general social 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 biodiversity of the site is very important to local communities and is traded on a local, regional and national level, as well as some trade in food, skins and medicinal products to neighbouring countries (Allan et al 2008); more conservation effort is needed to reduce these trading activities to maintain the site's biodiversity.

The area is important for local livelihoods which depend on the breadth of the area's resources. While limited availability of cultivatable land, typical of wetland livelihoods, people rely on a range of food sources. Fish products not only provide the main source of protein in already poor protein diets, but can be used for trade or barter to acquire rice (Allan et. al 2008).

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?

If Yes, tick the box 2 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:

Local communities use the traditional fishing gear for fishing. *Trey real (Henicorhynchus siamensis)* are abundant in the wet season in this Ramsar site as they migrate through the area. Local caught these fishes for not generally sold but used for making fermented fish paste *prahok* for daily household cooking a whole year.

- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- 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:

# 24. Land tenure/ownership:

a) within the Ramsar site:

Stung Treng Ramsar Site is one of the National Protected Area (NPA) of Cambodia. All land in Cambodian NPAs is owned by the government. However, in Stung Treng Ramsar Site there are several villages which are located inside and adjacent to the site (see map). The private land of those villages is subject to be declared as community-use-zone inside the NPA, and will also be regarded as private land tenure in the future.

b) in the surrounding area:

The surrounding of the Ramsar Site are rice fields and forest land. The rice fields surrounding the villages are privately owned and the forest land is government owned.

# 25. Current land (including water) use:

a) within the Ramsar site:

The area is under protection and commercial fishing is not allowed. Small-scale family fishing is allowed, however. Some patches of the channel islands are also available for agricultural purposes though the land remains state-owned.

# b) in the surroundings/catchment:

The forest surrounding the Ramsar site was leased to private sector under the economic land concession. At least three companies received licences to convert the forest land for cash crop development purpose.

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

a) within the Ramsar site:

The official boundary of the Stung Treng Ramsar Site has not yet been defined and mapped. This makes it difficult to protect certain areas against development activities as it happened in the Stung Treng Ramsar Site including forest clearing for agriculture extension purpose by local communities and private companies. The main reasons make this Ramsar site still not officially mapping is an Institutional Conflict, and limit implementation resources (financial and technical staff).

The following factors were also seen as threats against the maintenance of the ecological character of the site:

The notably high loss rate of gallery and semi-evergreen forest is continuing. Within the next five years the gallery forest still existing within the Ramsar Site will be gone (R.J. Timmin 2006) due to the incapacity and/or unwillingness of the Government to protect its forest. The various causal factors for losing that forest within the near future include a growing local population, immigration, and missing environmental law enforcement. The expending infrastructure network and land speculation with regard to market-driven agricultural increase of cash crop are the key causes of continue loss of forest.

River banks are now in poor condition due to logging for agricultural conversion. The loss of tall gallery vegetation also has a significant negative impact on bankside vegetation such as increasing light penetration, loss of the root networks of large trees that potentially consolidate soils, and fire spreading from the burning of cut gallery vegetation.

Algal blooms have increased in some places of the site, affecting river transport and fouling fishing gear. The blooms are likely to be a result of increased fertilisers stemming from intensive farming in the region and general increases in population.

Another problem for the Ramsar Site is fire. These are not huge and dangerous forest fires but small fires that burn accumulations of dead material (there is a strong culture of burning to clear forest lands). This fire would eventually have a strong negative impact on a large number of wildlife species and on the ecological character of sand banks. In several instances sand banks were seen which appeared to have formed over accumulations of wood debris. The burning of dead woody vegetation may therefore have complex negative effects on the channel habitat (R.J. Timmin 2006)

The exotic *Mimosa pigra* disturbed area of river bank and sand island, however this species does not cope well during flooding season and it will be not a serious impact on the vegetation dynamic of the sand features.

The wildlife hunting and collection of waterbirds has also been note as current threats of the site, most importantly the border point in Stung Treng province (not far from Stung Treng Ramsar site) was identified as one of key wildlife rout trade from Cambodia to Lao (Wildlife Rapid Rescue Team pers. pres.). Law enforcement and education activities are necessary require in order to minimize its impact on biodiversity.

b) in the surrounding area:

The surrounding forest in the catchments is mostly subject to forest land concessions and large areas have been converted to agricultural monocultures already not supporting any substantial number of wildlife species. Increasing human populations in the area also pose to have an impact through everyday activities and pressures that humans place on the environment.

One of the most significant dams which will undoubtedly injure the Stung Treng Ramsar site when realized is the proposed Don Sahong dam at the Khone fall in Laos (1km north of the site). Further studies are required to assess the impact of this and other planned dams upstream of the Ramsar Site. Additionally, increasing deforestation in the catchment going along with the construction of dams will also damage drastically the site's ecological character. This is manifested through drastically declining populations of bird, mammal species, and the other biodiversity of such areas adapted to the ecosystems which now are already or will be destroyed through the construction and operation of dams.

#### 27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar 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.

In November 2010, Mlub Baitong (a local NGO) has supported local communities in the Ramsar Site to establish community based organizations (CBO) and strengthening the people's capacity to use the natural resources sustainably

The area is recognized as one of the Important Bird Areas in Cambodia by BirdLife International and also one of three WWF Global 200 eco-regions in Cambodia. On 23 October 1999, Cambodian government became an official contracting party to the Ramsar Convention and designated three international important wetlands as Ramsar Sites - the Stung Treng Ramsar Site is one of them. In January 2008, the protected area law was ratified by National Assembly and Ramsar Sites were categorized as NPAs under management of Ministry of Environment.

Ministry of Environment has established the management body of Stung Treng which consists of the Ramsar Site manager and law enforcement rangers since the site was officially recognized. However, the effectiveness of patrolling activities has not been quantified and undoubtedly is very much limited due to inadequate financial and human resources.

In 2006, responding to increasing concern over the status of the Mekong River Irrawady Dolphin, the Cambodian government formed the Cambodian Dolphin Commission. This commission has since set up additional measures to address dolphin conservation issues throughout the Mekong, including Stung Treng Ramsar Site.

<b>b)</b> If appropriate, list the IUCN (1994) protected areas cate	egory/ies which apply to the site (tick the box
or boxes as appropriate):	

Ia  $\square$ ; Ib  $\boxtimes$ ; II  $\square$ ; III  $\boxtimes$ ; IV  $\square$ ; V  $\square$ ; VI  $\boxtimes$ 

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

Since 2007, the Mekong Wetland Biodiversity Conservation and Sustainable Use Programme is supporting the elaboration of a short term management plan for Stung Treng Ramsar Site. The first objective of this management is to maintain and enhance the ecological character of the Stung Treng Ramsar Site to ensure continued provision of the range of ecosystem services for human well-being at all scales. Part of this management plan is being implemented with support from several agencies and donor-funded projects/programmes. There is no long term strategic management plan/program established yet.

# d) Describe any other current management practices:

The law on protected areas was enacted in January 2008 and the sub-degree for the areas fisheries is in draft. Additionally, resident environmental rangers monitoring the area.

In November 2010, Mlub Baitong (a local NGO) has supported local communities in the Ramsar Site to establish community based organizations (CBO) and strengthening the peoples capacity to use the natural resources sustainably

# 28. Conservation measures proposed but not yet implemented:

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

Management plan is now being updated with support from WWF- Cambodia Program

# 29. Current scientific research and facilities:

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

An assessment of the biodiversity conservation significance was done since 2006 by the Mekong Wetland Biodiversity Conservation and Sustainable Use Programme. This assessment report was made public and is available for download. Integrated assessments of the biodiversity, livelihood and economic implications of the proposed special management zone have been conducted in 2008 by IUCN.

# 30. 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.

There is a viewing platform where people can overlook the site and spot dolphins. There is also a general environmental education program covering many environmental aspects including awareness as to the importance of the wetlands that is available through the information centre in O'Svay Village and the tourist service centre in Preah Romkel.

Supports for CEPA activities in the site comes from NGOs including Culture and Environment Preservation Association-CEPA (Natural resource awareness raising and support to establish Community Fishery Area), Mlub Baitong (Sustainable use natural resources awareness raising, support to establish community based ecotourism project, and improve livelihood through establish saving groups) and CRDT (Community income generation particularly agriculture technique training).

# 31. Current recreation and tourism:

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

The site has yet to be developed for recreational purposes. There is currently no tourism facility and most visitors to the site come to conduct research. A small number of tourists come to view Freshwater Dolphins which may provide the basis and scope for future tourism enterprises. The unique landscape and rich biodiversity makes it an attractive place for ecotourism development. In 2008, Community based ecotourism projects have been established in Preah Rumkel commune (part of Ramsar Site), and a community based ecotourism management committee has been established. This committee is responsible to run the ecotourism project including construction and maintenance of tourism infrastructures and facilities. The Ecotourism Project resulted already in an income increase, which has been partly used to create a community fund.

#### 32. Jurisdiction:

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

Administrative Jurisdiction: The site is under the administrative supervision of Stung Treng provincial authority

Functional Jurisdiction: Department of Wetlands and Costal Zones of General Department of Administration for Nature Conservation and Protection, Ministry of Environment, however, the Fisheries Administration is responsible for the management of economic and resource use activities as well.

#### 33. Management authority:

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

The Environmental Department of Stung Treng Province.

Mr. Hak Vimean Kandal Village, Sangkat Stung Treng Stung Treng city Stung Treng province Cambodia

Tel: (855) 92 740 109

Fax: N/A Email: N/A

# 34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Allen, D., Darwall, W. Dubois, M., Kimsreng, K., Lopez, A., McIvor, A., Springate-Baginski, O., and Try, T., 2008. Integrating people into conservation planning: An integrated assessment of the biodiversity, livelihood and economic implications of the proposed special management zones in the Stung Treng Ramsar Site, Cambodia. IUCN Cambodia Country Office, Phnom Penh.

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Ministry of Water Resources and Hydrology - Department of Hydrology and River Works (Accessed 15/02/2011) <a href="http://www.dhrw-cam.org/hydrograph.php?action=image&hy\_cat\_id=&hydroid=68">http://www.dhrw-cam.org/hydrograph.php?action=image&hy\_cat\_id=&hydroid=68</a>

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Sinthavong VIRAVONG, Sommano PHOUNSAVATH, Chanthone PHOTITAY, PUTREA Solyda, CHAN Sokheng, J. KOLDING, J. VALBO JØRGENSEN and Kaviphone PHOUTAVONG. (2006). *Hydroacoustic surveys of deep pools in Southern Lao PDR and Northern Cambodia. MRC Technical Paper No.11*, Mekong River Commission, Vientiane. 76 pp. ISSN: 1683-1489

The World Conservation Union (IUCN) (2007) Cambodia and Darwin Initiative

Wetland Biodiversity Management project, (2005) Cambodia

World Weather and Climate Information. (Accessed 15/02/2011) <a href="http://www.weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,Stung-Treng,Cambodja">http://www.weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,Stung-Treng,Cambodja</a>

Mekong River Commission (2006), Biomonitoring of the lower Mekong River and selected tributaries, MRC technical report No 13.

# Information Sheet on Ramsar Wetlands (RIS), page 14

Mekong River Commission (2007), Diagnostic study of water quality in the Lower Mekong Basin, MRC technical report No 15.

Cambodia Prime Minister decree # 123 Or No Kor Bror Kor (2009), aquatic species classification

Minister decree # 120 Bror Kor Kor Sor Kor (2007), wildlife species classification

Please return to: Ramsar Convention Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • e-mail: ramsar@ramsar.org

# Appendix 1: Rainfall, temperature and hydrology

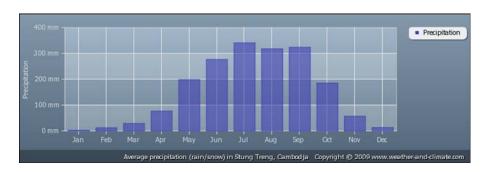


Figure 1: Average monthly rainfall in Stung Treng (Source: www.weather-and-climate.com)

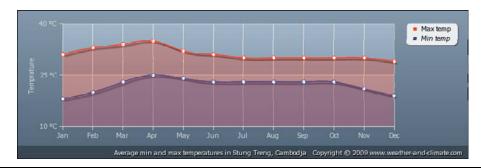


Figure 2: Minimum and maximum temperature in Stung Treng (Source: www.weather-and-climate.com)

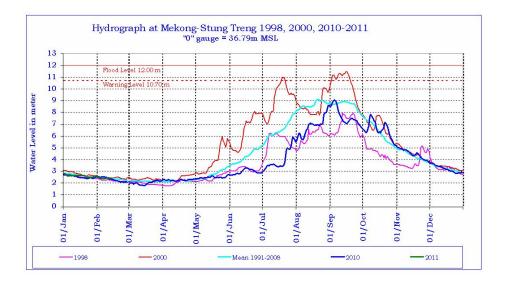


Figure 3: Stung Treng hydrological data (source: Ministry of Water Resources and Hydrology - Department of Hydrology and River Works).

Appendix 2: Fish species in Stung Treng Ramsar Site

Scientific Name	Local Name	Red List
1 Acantopsis spp.1	Trei Reus chek 1	5
2 Acantopsis spp.2	Trei Reus chek 2	?
3 Achiroides melanorhynchus	Trei Andat Chhker	NE
4 Amblyrhynchichthys truncatus	Trei Kambot chromos	NE
5 Anabas testudineus	Trei Kranh	DD
6 Arius maculatus	Trei Ka O'ck	NE
7 Bagarius yarrelli	Trei Krapeu	NT
8 Bagrichthys macracanthus	Trei Chektum	NE
9 Bagrichthys macropterus	Trei Chektum	NE
10 Barbodes gonionotus	Trei Chhpen Tpoil Khmao	NE
11 Barbonymus schwanenfeldii	Trei Kraher	LC
12 Belodontichthys dinema	Trei Klanghay	NE
13 Boesemania microlepis	Trei Prormar	NT
14 Botia helodes	Trei Kanchrouk Bangkang	NE
15 Botia lecontei	Trei Kanchrouk Kantuy khmao	NE
16 Botia modesta	Trei Kanchrouk Thmor	NE
17 Botia spp.	Trei Kanchrouk Khla	?
18 Channa micropeltes	Trei Chhdor	LC
19 Channa orientalis	Trei Ksan	NE
20 Channa striata	Trei Roh	LC
21 Chitala blanci	Trei Kray	NT
22 Chitala ornata	Trei Ka ei / Trei Kray Sac	LC
23 Cirrhinus microlepis	Trei Proul	VU
24 Clarias batrachus	Trei Andeng Reung	LC
25 Clarias macrocephalus	Trei Andeng Tunn	NT
26 Cyclocheilichthys apogon	Trei Sraka Kdarm	LC
27 Cyclocheilichthys armatus	Trei Phkakor	LC
28 Cyclocheilichthys enoplus	Trei Chhkoak Mole	NE
29 Cyclocheilichthys furcatus	Trei Chhkoak Kdar	LC
30 Datnioides microlepis	Trei Khla 2	NE
31 Datnioides polota	Trei Khla 1	LC
32 Glyptothorax lampris	Trei Krapeu 2	LC
33 Hampala dispar	Trei Khman	LC
34 Helicophagus waandersii	Trei Pra Kandol	NE
35 Hemibagrus filamentus	Trei Tanel Thmor	DD
36 Hemibagrus wyckioides	Trei Clang	LC
37 Henicorhynchus cryptopogon	Trei Real Thmor	NE
38 Henicorhynchus siamensis	Trei Real Tob	NE
39 Himantura chaophraya	Trei Borbele	NE
40 Hypsibarbus lagleri	Trei Papean	VU
41 Hypsibarbus malcolmi	Trei Chhpin Mole	LC

42 Hypsibarbus spp.CF. vernayi	Trei Chhpin Meas	5
43 Kryptopterus schilbeides	Trei Kampleav	NE
44 Krytopterus moorei	Trei Slabmoin 1	NE
45 Krytopterus schilbeides	Trei Slabmoin 2	NE
46 Labeo chrysophekadion	Trei Ka Ek Khmao	LC
47 Labeo erythropterus	Trei Pava Mok Moy	NE
48 Labiobarbus siamensis	Trei Achkok 2	LC
49 Leiocassis siamensis	Trei Kanchoss para	NE
50 Lobocheilos rhabdoura	Trei Real 2	LC
51 Luciosoma setigerum	Trei Changva Nornorng	DD
52 Macrognathus siamensis	Trei Chhlonh Nhy	LC
53 Mastacembelus favus	Trei Khcheung	LC
54 Mekongina erythrospila	Trei Pase ii	NT
55 Micronema bleekeri	Trei Kes Chumrao	NE
56 Micronema micronema	Trei Kes Meas	NE
57 Monopterus albus	Trei Antung	LC
58 Mystus bocourti	Trei Kanchoss kdoang	VU
59 Mystus multiradiatus	Trei Kanchoss Chnote	LC
60 Mystus sp.cf.wolffi	Trei Kanchoss pruy 1	NE
61 Mystus wolffii	Trei Kanchoss pruy 2	LC
62 Hemibagrus wyckioides	Trei Khya	LC
63 Notopterus notopterus	Trei Slart	LC
64 Ompok bimaculatus	Trei Ta Own or Trei Kromorm	NT
65 Opsarius koratensis	Trei Changva bangkang	LC
66 Osphronemus exodon	Trei Romeas	VU
67 Osteochilus hasselti	Trei Kross 1	NE
68 Osteochilus melanopleurus	Trei Krum	NE
69 Osteochilus microcephalus	Trei Kross Chhnote 2	LC
70 Osteochilus waandersiI	Trei Kross Chhnote 1	LC
71 Oxyeleotris marmorata	Trei Damrei	LC
72 Pangasius conchophilus	Trei Ker	LC
73 Pangasius djambal	Trei Pra	NE
74 Pangasius larnaudii	Trei Ker Paphork	LC
75 Pangasius macronema	Trei Chhveat Dong	LC
76 Pangasius sanitwongsei	Trei Pour Pruy	CR
77 Paralaubuca barroni	Trei Sleuk Reusey	LC
78 Parambassis wolffii	Trei Kantrong Preng	LC
79 Polynemus dubius	Trei Pream	NE
80 Poropuntius deauratus	Trei Kross 2	EN
81 Poropuntius malcolmi	Trei Chhpen Mole	NE
82 Pristolepis fasciata	Trei Kantrob	LC
83 Probarbus labeaminor	Trei Trorsorck	NT
84 Puntioplites falcifer	Trei Chrorkeng 1	LC

85 Puntioplites proctozysron	Trei Chorkeng 2	NE
86 Puntius orphoides	Trei Phka Char/ Trei Ampil Tum	NE
87 Rasbora aurotaenia	Trei Changva Mole	LC
88 Setipinna melanochir	Trei Chhmar	NE
89 Tenualosa thibaudeaui	Trei Kbork	VU
90 Tetraodon nigroviridis	Trei Kamport	NE
91 Thynnichthys thynnoides	Trei Linh	LC
92 Trichogaster pectoralis	Trei Kanthor	NE
93 Trichogaster trichopterus	Trei Kampheanh	NE
94 Wallago attu	Trei Sanday	NT
95 Wallago leerii	Trei Stouk	NE
96 Xenentodon canciloides	Trei Phtoang	NE

Source: IUCN 2008

Notes

Red List status (according to the IUCN Red List Categories and Criteria). DD: Data Deficient; NT: Neatr'Threatened; VU: Vulnerable; EN:Endangered; CR: Critically endangered; NE: the species has not been assessed (at a global level); - Scientific name of the species not known/unclear.

Unknown English/ Scientific name Fish species in Stung Treng Ramsar Site

Scientific/English Name	Local Name	Red List
	1.Trei Pakeng	
	2.Trei Pava Mokbac	
	3.Trei Pava Phka Andeng	
	4.Trei Chveat Kantuy reach	
	5.Trei Chhveat Chnot	
	6.Trei Pakok	
	7.Trei Thmor	
	8.Trei Chhpin Koang	
	9.Trei Chhpin Kda	
	10. Trei Real 1	
	12. Trei Pour Khmao Trocheak	
	13. Trei Ker Mort Loeung	
	14. Trei Pra sahat	
	15. Trei Kropoit	
	16. Trei Ambong	
	17. Trei Lhou	
	18. Trei Chhnok Dorb	
	19. Trei Dorng Khteng	
	20. Trei Kampul bay	
	21. Trei Tanel	
	22. Trei Ka Ek	
	23. Trei Chlonh Chhmole	
	24.Trei Chanva Kantuy Krorhorm	
	25.Trei Kross 3	

26.Trei Kross Khyall
27.Trei Kross Kantuy Krorhorm
28.Trei Pakeng Pruy Leung
29.Trei Chamnang Kaky
30.Trei Parpok
31.Trei Nornoung Lving
32.Trei Trasorck Ka Ek
33.Trei Panai New species for the Ramsar Site

**Note:** The above 33 species were recorded with Khmer names through the survey but were not identified to species level. The IUCN conservation status of these species could not be ascertained. Local name may be Khmer or Laotian-based

Appendix 3: Bird species in Stung Treng Ramsar Site

No	English Name	Scientific Name	Red List
1	Green Peafowl	Pavo Muticus	EN
2	Spot-billed Duck	Anas poecilorhyncha	LC
3	White-bellied Woodpecker	Dryocopus javensis	LC
4	Oriental Pied Hornbill	Anthracoceros albirostris	LC
5	Pied Kingfisher	Ceryle rudis	LC
6	Blue-tialed Bee-eater	Merops philippinus	LC
7	Alexandrine Parakeet	Psittacula eupatria	LC
8	Blossom-headed Parakeet	Psittacula roseata	LC
9	Barn Owl	Tyto alba	LC
10	Brown Fish Owl	Ketupa zeylonensis	LC
11	Spotted Wood Owl	Strix seloputo	LC
12	Orange-breasted Green Pigeon	Treron bicincta	LC
13	Yellow-footed Green Pigeon	Treron pheonicoptera	LC
14	Green Emperial Pigeon	Ducula aenea	LC
15	Eurasian Thick-knee	Bhurhinus oedicnemus	LC
16	Great Thick-knee	Esacus recurvirostris	LC
17	River Lapwing	Vanellus duvaucelii	NT
18	Small Pratincole	Glareola lactea	LC
19	River Tern	Sterna aurantia	NT
20	Brahminy Kite	Haliastur indus	LC
21	Grey-headed Fish Eagle	Ichthyophaga ichthyaetus	NT
22	Oriental Darter	Anhinga melanogaster	NT
23	Little Cormorant	Phalacrocorax niger	LC
24	Indian Cormorant	Phalacrocorax fuscicollis	LC
25	Great Cormorant	Phalacrocorax carbo	LC
26	Grey Heron	Ardea cinerea	LC
27	Black-crownded Night Heron	Nycticorax nycticorax	LC
28	White-shouldered Ibis	Pseudibis davisoni	CR

# Information Sheet on Ramsar Wetlands (RIS), page 20

29	Spot-billed Pelican	Pelecanus philippensis	NT
30	Woolly-neck Stork	Ciconia episcopus	LC
31	Lesser Adjutant	Leptoptilos javanicus	VU
32	Swinhoe's Minivet	Pericrocotus cantonensis	LC
33	Hill Myna	Gracula religiosa	LC
34	Mekong Wagtail	Motacilla samveasnae	NT
35	Baya Weaver	Ploceus philippinus	LC

Source: IUCN 2012