



P.L. RAJ IAS & IPS ACADEMY

Building Bureaucrats Since 2006

3. Maharashtra's Wetlands Documentation – NCSCM Completes Ground-Truthing Of 23,415 Wetlands – Environment

1. Why in News

1. National Centre for Sustainable Coastal Management (NCSCM) completed documentation and ground-truthing of Maharashtra's 23,415 wetlands
2. Comprehensive mapping exercise identifying, verifying wetland ecosystems across state
3. Critical for conservation planning, sustainable management, climate resilience
4. India has ~4.6% land as wetlands with 99 Ramsar sites (3rd largest globally by number)
5. Tamil Nadu holds highest Ramsar sites in India (20 sites as of 2026)

2. What is a Wetland?

Definition

1. Ecosystem where land covered by water—salt, fresh, or brackish—either seasonally or permanently
2. Functions as distinct ecosystem with unique characteristics
3. Water saturation determining factor (not depth)

Types of Wetlands

1. **Inland wetlands** – Lakes, rivers, underground aquifers, swamps, wet grasslands, peatlands, floodplains
2. **Coastal wetlands** – Deltas, tidal flats, mangroves, coral reefs, lagoons, estuaries, salt marshes
3. **Human-made wetlands** – Reservoirs, aquaculture ponds, irrigation tanks, rice paddies, salt pans

3. Wetlands in India

Diversity

1. **High-altitude wetlands** – Himalayan lakes, glacial wetlands (Tsomgo, Pangong Tso, Wular Lake)
2. **Floodplains** – Ganges, Brahmaputra River systems (Kaziranga, Keoladeo)
3. **Coastal ecosystems** – Lagoons (Chilika, Pulicat), mangrove marshes (Sundarbans, Bhitarkanika)
4. **Marine environments** – Coral reefs (Gulf of Mannar, Lakshadweep)

Statistics

1. India – ~4.6% land as wetlands (~7.57 lakh hectares)
2. **99 Ramsar sites** (Wetlands of International Importance)
3. Largest Ramsar site network in Asia, 3rd largest globally by number (after UK, Mexico)
4. **Tamil Nadu** – Highest Ramsar sites (20 as of 2026)
5. Other states with multiple sites – Uttar Pradesh, Jammu & Kashmir, Gujarat, Rajasthan

4. Importance of Wetlands

Biodiversity Hotspots

1. Among most biologically diverse ecosystems on Earth
2. Support wide variety of plant species (aquatic vegetation, reeds, mangroves)
3. Animal species – Migratory birds, fish, amphibians, reptiles, mammals
4. Critical breeding, feeding, nesting grounds

Water Filtration and Purification

1. Act as natural filters trapping, removing pollutants, sediments
2. Vegetation, soil microorganisms breaking down contaminants (nutrients, heavy metals, pesticides)
3. Improving downstream water quality for human consumption, agriculture

Flood Control and Water Regulation

1. Natural buffers against floods absorbing, slowing excess water during heavy rainfall, storm events
2. Wetland vegetation reducing water flow velocity
3. Recharging groundwater aquifers during dry periods
4. Regulating river flow preventing droughts

Carbon Sequestration

1. Waterlogged conditions slow decomposition of organic matter
2. Leading to carbon accumulation in soil (peat formation)
3. **Carbon sinks** – Storing more carbon than they release
4. Mitigating climate change (coastal wetlands—blue carbon ecosystems—especially effective)

Economic Benefits

1. Support fisheries (spawning grounds, nurseries providing livelihoods)
2. Agriculture (irrigation water, fertile soils)
3. Tourism (birdwatching, boating, eco-tourism generating revenue, employment)
4. Traditional livelihoods (fishing communities, reed harvesting, salt production)

Other Benefits

1. **Storm protection** – Coastal wetlands (mangroves) buffering against cyclones, tsunamis
2. **Nutrient cycling** – Supporting food chains, primary productivity
3. **Cultural significance** – Religious, recreational, aesthetic values

5. Ramsar Convention

Overview

1. International treaty aimed at conserving wetlands worldwide
2. Adopted Ramsar, Iran, 1971; entered force 1975
3. Formally – "Convention on Wetlands of International Importance especially as Waterfowl Habitat"
4. 172 contracting parties (countries) as of 2024

Ramsar Sites

1. Countries designating wetlands of international importance within territories

Criteria for designation –

2. Supporting vulnerable, endangered, critically endangered species OR
3. Threatened ecological communities OR
4. Regularly supporting 20,000+ waterbirds OR
5. Important food source for fishes, spawning grounds, nurseries

India's Participation

1. Party to Convention since 1982
2. 99 Ramsar sites covering ~13 lakh hectares
3. **Recent additions** – Magadi Kere (Karnataka), Ankasamudra (Karnataka), Aghanashini Estuary (Karnataka), others
4. **Largest site** – Sundarbans (West Bengal, ~4,23,000 hectares)
5. **First sites (1981)** – Chilika Lake (Odisha), Keoladeo National Park (Rajasthan)

Convention Obligations

1. Wise use of all wetlands (not just Ramsar sites)
2. Designate suitable wetlands for Ramsar List
3. International cooperation on transboundary wetlands, shared species
4. Establish wetland reserves, promote training, research, public awareness

6. National Centre for Sustainable Coastal Management (NCSCM)

1. Autonomous institution under Ministry of Environment, Forest and Climate Change
2. Headquartered Chennai
3. **Functions** – Coastal zone management, marine spatial planning, capacity building, research
4. **Maharashtra wetlands project** – Documentation, ground-truthing (field verification), GIS mapping for conservation planning

7. Significance of Maharashtra Wetlands Documentation

Conservation Planning

1. Baseline data for protection strategies, restoration priorities
2. Identifying threatened wetlands requiring urgent intervention

Sustainable Management

1. Informing land-use planning, development regulations
2. Balancing conservation with economic activities

Climate Resilience

1. Wetlands critical for flood mitigation, drought management, carbon sequestration
2. Documentation helps leverage wetlands for climate adaptation

Biodiversity Monitoring

1. Tracking species populations, habitat health over time
2. Informing conservation programs for endangered species

8. Conclusion

NCSCM's documentation of Maharashtra's 23,415 wetlands marks significant step toward sustainable coastal-inland ecosystem management. Wetlands—covering ~4.6% India's land—provide critical services including biodiversity support, water filtration, flood control, carbon sequestration, and economic benefits through fisheries-tourism. India's 99 Ramsar sites (3rd largest globally, largest in Asia) under 1971 Ramsar Convention demonstrate commitment to international wetland conservation. Tamil Nadu leads with 20 Ramsar sites. Maharashtra's comprehensive mapping enables evidence-based conservation planning, climate resilience strategies, and balanced development ensuring these vital ecosystems continue delivering ecological-economic benefits for present-future generations.

Source – <https://www.thehindu.com/news/national/maharashtra/maharashtra-completes-documentation-of-over-23000-wetlands/article70999206.ece>