Strive Edge
IAS Academy



INTERNATIONAL ENVIRONMENTAL CONVENTIONS & ORGANISATIONS

1. UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

Key Fact	Details
Established	1972 — Stockholm Conference on the Human Environment
Headquarters	Nairobi, Kenya (first UN body in Global South)
Governing body	UN Environment Assembly (UNEA)
Executive head	Executive Director

Historical Background

- Originated from UN Conference on the Human Environment (1972, Stockholm)
- Adopted Stockholm Declaration with 26 principles of environmental governance
- Marks beginning of global environmental governance
- **First UN body headquartered in the Global South** — a landmark in equity-based multilateralism

Objectives

- Coordinate global environmental actions across UN system
- Support policy-making, capacity building & technical assistance
- Facilitate international environmental treaties
- Address: Climate change • Biodiversity loss • Pollution • Resource depletion

Structure of UNEP

(i) UN Environment Assembly (UNEA)

- Highest global environmental decision-making body with universal membership
- Meets biennially in Nairobi; adopts resolutions & global priorities
- **UNEA-7 (2025):** Focus on AI & environment, Wildfires, Climate governance; adopted Medium-Term Strategy 2026–2029

(ii) Committee of Permanent Representatives (CPR)

- Advisory body to UNEA; prepares agenda and ensures continuity

(iii) Secretariat & Regional Offices

- Headed by Executive Director; implements UNEA decisions
- Regional Offices cover Asia-Pacific, Africa, Europe, Latin America, etc.

Key Functions & Major Reports

Functions

- Develops and supports global environmental treaties (CBD, CITES, Minamata)
- Provides technical assistance and capacity building to member states
- Coordinates global response to pollution, climate change, disasters

Major Reports

Global Environment Outlook (GEO-7, 2025)	Environmental action yields $100 trillion benefits; risk of 20% GDP loss
Emissions Gap Report 2025	1.5°C target at risk; need 55% emission cuts by 2035

Adaptation Gap Report 2025	Huge finance gap in developing nations
Food Waste Index Report	Tracks global food waste trends
State of Finance for Nature 2026	$1 positive vs $30 harmful investment in nature

Latest Developments 2024–2026

Triple Planetary Crisis Approach

- UNEP focuses on three integrated crises: Climate change + Biodiversity loss + Pollution
- Integrated approach replacing isolated, siloed solutions

New Agreements & Negotiations

- **High Seas Treaty (BBNJ Agreement):** Protects marine biodiversity beyond national jurisdiction; major milestone in ocean governance
- **Global Plastic Treaty (ongoing):** UNEP-led negotiations; aim for legally binding treaty on plastic pollution

UNEP Annual Outcomes 2025

- 170,000 sq km ecosystems restored globally
- Supported 150+ countries on conservation, coral reefs, glaciers, wildfires, AMR

India & UNEP

- Active role in climate policy, circular economy, biodiversity
- Hosted World Environment Day 2018
- **Champions of the Earth:** India's Narendra Modi (Policy Leadership); Afroz Shah (Beach Cleanup)
- **WCCB awarded** Asia Environment Enforcement Award for wildlife crime control

2. UNCED — RIO EARTH SUMMIT (1992)

Key Fact	Details
Held	Rio de Janeiro, 1992
Attendance	178+ countries
Theme	First summit integrating Environment + Development + Equity
Key Concept	Sustainable Development; CBDR principle introduced

Major Outcomes of Rio Summit

1. Rio Declaration (27 Principles)

- **Human-centric development:** People are at the centre of sustainable development
- **CBDR — Common but Differentiated Responsibilities:** Developed nations bear greater responsibility
- **Intergenerational equity:** Meeting needs of present without compromising future generations
- **Precautionary Principle:** Act before full scientific certainty when threats are serious

2. Agenda 21

- Blueprint for 21st-century sustainable development — 'Think Globally, Act Locally'

- Key areas: Social & economic dimensions, resource management, role of stakeholders
- Local Agenda 21 → grassroots-level implementation at city/town level

3. Legally Binding Treaties

- Convention on Biological Diversity (CBD)
- United Nations Framework Convention on Climate Change (UNFCCC)
- Forest Principles (non-binding guidelines for forest conservation)

Follow-up Summits

Summit	Key Outcome
Rio+5 (1997)	Assessment of uneven progress since Rio
Johannesburg Summit (2002)	Focus on implementation of Agenda 21
Rio+20 (2012)	Green economy framework + creation of UNEA

3. CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

Key Fact	Details
Adopted	Rio Earth Summit, 1992
Nature	Legally binding multilateral treaty
3 Objectives	Conservation • Sustainable Use • Benefit Sharing (ABS)
India	Biological Diversity Act, 2002; NBA, SBB, BMCs

Three Core Pillars

- Conservation of biodiversity (genetic, species, ecosystem diversity)
- Sustainable use of its components
- **Fair & equitable sharing of benefits (ABS):** Access to genetic resources, technology transfer, financial support

Protocols under CBD

1. Cartagena Protocol on Biosafety (2000)

- **Focus:** Safe handling of Living Modified Organisms (LMOs)
- **Advance Informed Agreement (AIA):** Prior consent required before LMO import
- Risk assessment on scientific basis via Biosafety Clearing House (BCH)
- Balances: Biotechnology benefits vs Environmental safety

2. Nagoya Protocol (2010)

- **Objective:** Access and Benefit Sharing (ABS) — equitable sharing of genetic resources
- **Prior Informed Consent (PIC) + Mutually Agreed Terms (MAT):** Core mechanisms
- Benefits: Monetary (royalties) + Non-monetary (tech transfer, research sharing)
- **Special protection:** Traditional knowledge and indigenous community rights

3. Nagoya–KL Supplementary Protocol

- Focus: Liability and redress for biodiversity damage from LMOs

Global Biodiversity Targets

Aichi Biodiversity Targets (2011–2020)

- 20 targets under 5 Strategic Goals (A to E)
- Goal A: Mainstream biodiversity into economy (address root causes)
- Goal B: Reduce direct pressures (deforestation, pollution, invasive species)
- Goal C: Protect 17% land + 10% marine (Target 11)
- Goal D: Restore 15% degraded ecosystems (link biodiversity with welfare)
- Goal E: NBSAPs, indigenous knowledge, technology transfer, finance
- **Result:** FAILED — majority of Aichi Targets not fully achieved

Kunming–Montreal Global Biodiversity Framework (KMGBF) 2022

Known as 'Paris Agreement for Nature' — Adopted at COP-15, CBD (2022)

Vision: 'Living in harmony with nature by 2030/2050'

Key Targets (BY 2030)

Target	Description
30×30 Target	Protect 30% of Earth's land & oceans by 2030
Ecosystem Restoration	Restore 30% of degraded ecosystems
Invasive Species	Reduce spread of invasive species by 50%
Finance	Mobilize $200 billion/year; reduce $500 billion harmful subsidies
Pollution	Reduce pollution (including pesticides) to safe levels

Latest Developments (2024–2026)

COP-16 (2024–25) — Theme: 'Peace with Nature'

- **Cali Fund (2025):** New fund based on Digital Sequence Information (DSI); 50% funds to indigenous communities
- **Digital Sequence Information (DSI):** Digital DNA/genetic data used in pharma, AI research, biotech — first global benefit-sharing mechanism
- Finance commitments: $200 billion/year goal reinforced; address $700 billion biodiversity finance gap
- Permanent body for indigenous communities under CBD; recognition of traditional ecological knowledge

India & CBD

Biological Diversity Act, 2002

- 3-Tier Structure: National Biodiversity Authority (NBA) → State Biodiversity Boards (SBBs) → Biodiversity Management Committees (BMCs)
- India hosts ~7% of global species — megadiverse country
- **7th National Report (2026):** Only 2/23 targets fully achieved; forest cover ~25%
- **Updated NBSAP (2024–2030):** Aligns with KMGBF; targets 30% conservation & ecosystem restoration
- **ABS Regulations 2025:** Benefit sharing linked to company turnover; covers DSI; protects traditional knowledge

4. RAMSAR CONVENTION ON WETLANDS (1971)

Key Fact	Details
Adopted	1971 at Ramsar, Iran | In force: 1975
HQ / Secretariat	Gland, Switzerland (IUCN premises)
Members	~172 Contracting Parties | 2500+ Ramsar Sites globally
India	Member since 1981 | 98 Ramsar Sites (2026)
World Wetlands Day	2 February every year

Core Philosophy — 'Wise Use'

'Wise Use' = Maintaining ecological character through sustainable use

- Combines: Conservation + Livelihoods + Sustainable development

Three Pillars of Ramsar Convention

- **(i) Wise Use of Wetlands:** Policy, legislation, land-use planning, public awareness
- **(ii) Ramsar List:** International list of wetlands of importance; selection based on biodiversity, rare ecosystems, waterbirds
- **(iii) International Cooperation:** Transboundary wetlands, shared species, joint conservation

Montreux Record

Montreux Record = Register of threatened Ramsar Sites (ecological degradation, pollution, development)

India's Montreux Record Sites

Site	Added	Status
Keoladeo NP, Rajasthan	1990	Still listed
Loktak Lake, Manipur	1993	Still listed
Chilika Lake, Odisha	1993	Removed 2002 after restoration success

India's Ramsar Sites — Rapid Growth

- 2014 → 26 sites \| 2026 → 98 sites (among top globally)
- Ramsar COP-15 (2025): India introduced 'Sustainable Lifestyles for Wetlands' — linked with LiFE Mission

Government Initiatives (India)

- **Amrit Dharohar Scheme:** Conservation + eco-tourism + community participation
- **Wetland City Accreditation:** Recognizes cities with sustainable wetland management
- **Wetlands Rules, 2017:** Establishes State Wetland Authorities; prohibits encroachment, waste dumping, industrial discharge

Importance & Threats

- Ecological: Biodiversity hotspots, migratory bird habitat
- Hydrological: Flood control, groundwater recharge

- Climate: Carbon sinks, climate resilience
- Threats: Urbanization, pollution, invasive species (water hyacinth), over-exploitation

5. CITES — Convention on International Trade in Endangered Species

Key Fact	Details
Adopted	1973 (Washington D.C.) | In force: 1975
Secretariat	Geneva, Switzerland
Administered by	UNEP
Members	~183 Parties | Covers 40,000+ species
India joined	1976 | Uses Wildlife (Protection) Act, 1972

CITES Appendices — Classification System

Appendix	Status	Examples
I (~900 spp.)	Threatened with extinction — Commercial trade BANNED	Tigers, Gorillas, Sea turtles
II (~34,000 spp.)	Not immediately endangered — Trade with export permits	American alligator, Corals, Mahogany
III	Protected in at least one country — Other countries assist	Walruses, Map turtles, Honey badger

Institutional Structure

- **Conference of Parties (CoP):** Highest decision-making body; meets every 2–3 years; amends Appendices
- **CITES Secretariat (Geneva):** Coordinates communication and compliance monitoring
- **National Management Authority:** Issues permits; maintains trade records
- **National Scientific Authority:** Conducts Non-Detriment Findings (NDFs)

Latest Developments (2024–2026)

- **50 Years of CITES (2025):** Marks global success; 3 March = World Wildlife Day
- **CoP20 (2025):** Focus on compliance, Appendix updates, tackling illegal trade networks
- **Strategic Vision 2021–2030:** Aligns with Kunming-Montreal GBF; goals for sustainable trade, reduced biodiversity loss
- **ICCWC (Wildlife Crime Partnership):** CITES + INTERPOL + UNODC; enhances enforcement & cross-border investigation
- **MIKE Programme:** Monitoring Illegal Killing of Elephants; India: Chirang-Ripu, Dihing Patkai

Limitations

- Weak enforcement in developing countries
- Focuses only on trade — does not address habitat destruction or climate change directly
- Illegal online wildlife trade (dark web) is a rising challenge

6. CMS — BONN CONVENTION ON MIGRATORY SPECIES (1979)

Key Fact	Details
Adopted	1979 (Bonn, Germany) | In force: 1983
Under	UNEP
Members	130+ Parties
India	Member since 1983; hosted COP-13 (2020, Gandhinagar)
Unique feature	Only global treaty exclusively on migratory species

CMS Appendices

- **Appendix I (Endangered Migratory Species):** Strict protection, habitat restoration, removal of migration barriers
- **Appendix II (Species Requiring Cooperation):** Promote regional/global agreements for unfavourable conservation status species

Key Agreements under CMS

- AEWA (African–Eurasian Waterbirds Agreement)
- EUROBATS (Conservation of Bats in Europe)
- Raptors MoU, Marine Turtle MoU, Dugong MoU

Latest Developments

CMS COP-13 (India, 2020) — Gandhinagar, Gujarat

- Mascot: Great Indian Bustard (GIB)
- India became COP President (2020–23)
- **Species added to Appendix I:** Great Indian Bustard, Asian Elephant, Bengal Florican
- Introduced concept of 'Animal Culture' in conservation planning

CMS COP-14 (2024, Uzbekistan)

- 14 new species added (e.g., Eurasian Lynx, sharks)
- Concerted Action Plans: Blue Shark, Chimpanzee; SSAPs for Hawksbill Turtle, Atlantic Humpback Dolphin

'State of the World's Migratory Species' — First Global Report

44% of migratory species declining | 22% threatened with extinction | 97% migratory fish at risk

Global Partnership on Ecological Connectivity (GPEC)

- New initiative to maintain migration corridors and restore ecosystems
- **Ecological Connectivity:** Key concept for linking habitats across borders and preventing fragmentation

India & CMS

- MoUs signed: Siberian Crane (1998), Marine Turtles (2007), Dugong (2008), Raptors (2016)
- National Action Plan for Migratory Birds (Central Asian Flyway)
- Dugong Conservation Reserve (Tamil Nadu)
- Marine Turtle Action Plan (2021–26)
- ZSI prepared first national migratory species list

7. STOCKHOLM CONVENTION ON POPs (2001)

Key Fact	Details
Adopted	22 May 2001 (Stockholm) | In force: 17 May 2004
Under	UNEP
Focus	Persistent Organic Pollutants (POPs) — toxic, bioaccumulative chemicals
India	Ratified 2006; Regulation of POPs Rules 2018

What are POPs? — Key Characteristics

- **Persistent:** Remain in environment for years/decades without breaking down
- **Bioaccumulative:** Concentrate in fatty tissues of organisms
- **Biomagnification:** Concentration increases up the food chain (up to 70,000×)
- **Long-Range Environmental Transport (LRET):** Travel globally via air/water currents
- **Toxic:** Cause cancer, immune disorders, reproductive issues, nervous system damage

POPs are fat-soluble (not water-soluble) — found even in Arctic and remote oceans

Three Annexes

Annex	Control Type	Examples
Annex A	Elimination (complete ban)	Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, PCBs
Annex B	Restriction (limited use)	DDT (allowed for malaria vector control)
Annex C	Unintentional release reduction	Dioxins, Furans — promote BAT/BEP

The 'Dirty Dozen' — Original 12 POPs

- Pesticides: Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, Hexachlorobenzene, Mirex, Toxaphene
- Industrial Chemicals: Hexachlorobenzene, Polychlorinated Biphenyls (PCBs)
- By-products: Dioxins (PCDD), Furans (PCDF)

Latest Developments

COP-12 (2025, Geneva) — Theme: 'Make visible the invisible'

- **3 new chemicals added to Annex A:** Chlorpyrifos, Long-chain PFCAs, MCCPs (chlorinated paraffins)
- 29 decisions adopted; focus on chemical-waste nexus (BRS conventions synergy)

BRS Conventions Synergy

Stockholm + Basel + Rotterdam = Lifecycle approach (Production → Use → Disposal → Waste)

PFAS — 'Forever Chemicals' (Emerging)

- PFAS (Per- and polyfluoroalkyl substances) — persistent in environment, found in plastics and consumer goods
- Linked with microplastics crisis; new frontier of POPs regulation

India & Stockholm Convention

- Ratified 2006; uses opt-out approach under Article 25(4)
- **POPs Rules 2018:** Banned 7 POPs including Chlordecone, HBBs, PBDEs, Pentachlorobenzene
- **Special provision:** DDT still allowed for malaria vector control in India
- **India's stand at COP-12 (2025):** Opposed Chlorpyrifos ban citing food security and farmer dependence; demanded tech transfer and financial support

8. BASEL CONVENTION (1989) — Hazardous Waste

Key Fact	Details
Adopted	22 March 1989 (Basel, Switzerland) | In force: 1992
Under	UNEP
Members	189 Parties (USA is NOT a party)
India	Signed June 1992 | Enforced 22 Sept 1992
Core mechanism	Prior Informed Consent (PIC) before transboundary waste movement

Background & Context

- 1970s–80s: Strict env. laws in developed countries → high disposal costs → toxic trade to developing nations
- **NIMBY syndrome (Not In My Backyard):** Domestic opposition forced waste export to poorer nations
- **Khian Sea dumping incident:** Exposed global environmental injustice — triggered Basel Convention

Key Provisions

- **Prior Informed Consent (PIC):** Export allowed only after approval from importing country
- Trade not allowed with non-parties; countries must prevent illegal trafficking
- State responsibility for waste generation, handling, disposal, and recycling

Regulated Waste Types

- Biomedical waste, Used oils, Lead-acid batteries, POPs, PCBs, E-waste
- Annex I (Hazardous), Annex II (Other waste), Annexes VIII & IX (clarification lists)

Latest Developments

- **E-Waste Amendment (2022 → Effective 2025):** Covers ALL e-waste (hazardous + non-hazardous); introduces stricter PIC; ends loophole of 'recyclable electronics'
- **Plastic Waste Amendment (2019 → 2021):** Plastic waste now regulated; mandatory PIC for mixed/contaminated plastic; linked with marine pollution
- **COP-16 (2023, Geneva):** Focus on illegal waste trafficking, tech assistance; integration with Stockholm & Rotterdam (BRS Conventions)
- **Tightening Waste Trade Rules (2025):** All e-waste requires prior approval; shift from 'waste trade' to regulated waste economy

Basel Ban Amendment

Prohibits export of hazardous waste from OECD/EU/Liechtenstein to developing countries (covers e-waste, toxic chemicals, ships)

India & Basel Convention

- Rapid increase in electronic waste — informal recycling sector dominates
- EPR (Extended Producer Responsibility), Plastic Waste Management Rules, E-waste Rules align with Basel

9. ROTTERDAM CONVENTION (1998) — Hazardous Chemicals Trade

Key Fact	Details
Adopted	1998 (Rotterdam) | In force: 24 Feb 2004
Secretariat	Geneva, Switzerland
Members	160+ Parties (India joined 2005; USA NOT a party)
Nature	REGULATORY — not a banning treaty
Core mechanism	Prior Informed Consent (PIC) procedure

Background & Evolution

- 1985: FAO Code of Conduct on Pesticides
- 1987: UNEP London Guidelines on hazardous chemicals
- 1989: Introduction of Voluntary PIC Procedure → 1998: Formal adoption → 2004: Legally binding

Prior Informed Consent (PIC) Procedure

PIC = Importing country must consent/reject/restrict chemical import; Exporting country MUST respect that decision

- **Decision Guidance Document (DGD):** Contains risk profile, handling guidelines, environmental impact — helps scientifically informed decisions
- **Annex III Chemicals:** ~50+ chemicals (pesticides + industrial) subject to PIC; approved by COP

Institutional Mechanism

- **Conference of Parties (COP):** Governing body; meets biennially; approves Annex III additions
- **Chemical Review Committee (CRC):** Scientific body that evaluates chemicals for inclusion in Annex III

Latest Developments

- **New chemicals recommended:** Iprodione (fungicide), Terbufos (insecticide) — likely Annex III inclusion
- **Political Deadlock:** Some harmful chemicals (Chlorpyrifos, mercury-related) blocked due to opposition — shows limits of consensus-based governance
- BRS Convention Synergy: Joint meetings with Basel + Stockholm for lifecycle chemical management
- Emerging issues: Textile waste with hidden hazardous chemicals; ship-breaking industry toxicity

India's Position

- **Chrysotile Asbestos issue:** India historically opposed Annex III listing — industrial dependency; however, mining is banned and shift to alternatives is underway
- Domestic framework: Manufacture, Storage & Import Rules 1989; Chemical Accidents Rules 1996
- ~1800+ MAH (Major Accident Hazard) units across ~300 districts

10. UNCCD — UN Convention to Combat Desertification (1994)

Key Fact	Details
Adopted	1994 (Paris) | In force: 1996
Members	197 Parties (near-universal)
One of	Three Rio Conventions (UNFCCC + CBD + UNCCD)
India	Ratified 1996 | Nodal Ministry: MoEFCC | 26 Mha restoration target
Approach	Bottom-up: Local participation, traditional knowledge, decentralization

Conceptual Clarity — Desertification

Desertification ≠ Expansion of deserts. It means land degradation in drylands due to climate change, deforestation, overgrazing

Key Objectives

- Prevent and reverse land degradation; mitigate drought impacts
- Ensure food security, water availability, and livelihood protection
- Promote Sustainable Land Management (SLM) in drylands

Major Initiatives

- **Land Degradation Neutrality (LDN):** Balance between degradation and restoration; linked to SDG 15.3; adopted by 120+ countries
- **National Action Programmes (NAPs):** Country-specific land assessment, policy reforms, community participation
- **Great Green Wall Initiative:** Restore 100 million hectares across Africa; generate 10 million jobs

COP Developments

- **COP14 (India, 2019):** Focus on drought, gender, sand & dust storms; Drought Toolbox; Global Sand & Dust Storm Coalition
- **COP15 (Abidjan):** Theme: Land. Life. Legacy; target 1 billion ha restoration by 2030
- **COP16 (Recent):** Added agriculture & rangelands; focus on gender data gap; shift to environment + socio-economic governance
- **COP17 (Mongolia, 2026 — Upcoming):** Expected focus on dryland governance and restoration acceleration

Latest Developments 2025

- **Desertification & Drought Day 2025 theme:** 'Restore Land, Unlock Opportunities' — target 1.5 billion ha restoration
- **Investment gap:** $2.6 trillion needed by 2030; private sector share only ~6% (need PPP model)

- UNCCD Data Dashboard: 126 countries tracked for land degradation and LDN progress
- Rights-based approach emerging: Focus on land tenure security and community rights

India & UNCCD

- ~30% of land degraded; major causes: soil erosion, water stress, deforestation
- **Target:** Restore 26 million hectares by 2030 (linked to 2.5–3 billion tonnes CO_2 carbon sink target)
- Policy: National Action Programme (NAP), afforestation, watershed development

11. INTERNATIONAL WHALING COMMISSION (IWC)

Key Fact	Details
Established	1946 (Washington D.C.) under ICRW
HQ	Cambridge, United Kingdom
Historic decision	1986 Moratorium — Zero catch limit for commercial whaling
Exception	Aboriginal Subsistence Whaling (ASW) allowed

1986 Moratorium — Core Concept

IWC introduced ZERO CATCH LIMIT for commercial whaling in 1986 — still in force

- Exceptions: (i) Aboriginal Subsistence Whaling (ASW) for indigenous communities
- (ii) Scientific Whaling — permitted under special provisions (controversial loophole)
- Japan withdrew in 2019 and resumed commercial whaling; Norway and Iceland continue

Latest Developments (2024–2026)

- **IWC 69th Meeting (2024, Lima, Peru):** South Atlantic Whale Sanctuary proposal failed; resolution on commercial whaling obligations adopted
- **Integration with global frameworks:** Linkages with Kunming-Montreal GBF and BBNJ Agreement (High Seas Treaty)
- **Blue Corridors:** New focus on protecting whale migration routes
- **Expanded threats:** Bycatch, ship strikes, marine pollution (plastic), ocean noise pollution, climate change — shift to holistic marine conservation

Technology in IWC

- Satellite tagging, acoustic monitoring, AI-based population modelling
- Enables real-time conservation and improves policy accuracy

12. VIENNA CONVENTION (1985) & MONTREAL PROTOCOL (1987)

Instrument	Nature	Focus
Vienna Convention (1985)	Non-binding framework	Research, monitoring, cooperation on ozone
Montreal Protocol (1987)	LEGALLY BINDING	Phase-out of Ozone Depleting Substances (ODS)
Kigali Amendment (2016)	Legally binding	Phase-down of HFCs (greenhouse gases)

Ozone Depletion — Causes & Impacts

- **ODS (Ozone Depleting Substances):** CFCs, Halons, Carbon Tetrachloride, Methyl Bromide — release Cl/Br radicals that destroy ozone
- Ozone layer location: Stratosphere (10–50 km altitude); absorbs harmful UV-B radiation
- Impacts: Skin cancer, cataracts, crop damage, immune suppression, marine ecosystem disruption

Montreal Protocol (1987) — Key Features

197 Parties = Universal participation — Most successful environmental treaty in history

- Binding phase-out schedules for ODS production and consumption
- Multilateral Fund for financial/technology assistance to developing countries
- Based on CBDR principle — different timelines for developed vs developing nations

Kigali Amendment (2016) — Climate Dimension

Kigali Amendment shifts Montreal Protocol from Ozone protection → Climate change mitigation

- **HFCs (Hydrofluorocarbons):** Introduced as CFC alternatives in 1990s; do NOT harm ozone but have VERY HIGH Global Warming Potential (GWP)

Group	Countries	Freeze Year & Target
Group 1	Developed Countries	Freeze: 2018 | 85% cut by 2036
Group 2	China, Africa, etc.	Freeze: 2024 | 80% cut by 2045
Group 3 (India)	India, Pakistan, Gulf	Freeze: 2028 | 85% cut by 2047

India: Kigali & Cooling

- India Cooling Action Plan (ICAP): 20-25% cooling demand reduction; 25-40% energy reduction by 2037-38
- Complete phase-out of HCFC-141b achieved under HPMP
- Kigali estimated to avoid 70–80 billion tonnes CO_2 equivalent; prevent ~0.5°C warming by 2100

Ozone Recovery News (2025)

- **Early closure of Antarctic ozone hole (2025):** Expected full recovery to pre-1980 levels by mid-21st century — global success story

13. MINAMATA CONVENTION ON MERCURY (2013)

Key Fact	Details
Adopted	2013 (Kumamoto, Japan) | In force: August 2017
Named after	Minamata city — site of mercury poisoning tragedy (1956)
Parties	~153+ countries
India	Ratified 2018 | Flexibility for mercury use till 2025

Why Mercury is Dangerous

- **Methylmercury:** Most toxic form; formed when mercury converts in aquatic environment
- **Bioaccumulation + Biomagnification:** Concentration increases along food chain; no safe exposure limit

- Health impacts: Nervous system damage, kidney/lung damage, immune effects
- Severe risk to children, pregnant women, and foetuses

Minamata Disease — Background

Minamata Disease (1956, Japan): Neurological syndrome from methylmercury poisoning; caused by industrial discharge into Minamata Bay

- Symptoms: Numbness, tremors, loss of vision/hearing, paralysis, coma, death, congenital defects (cerebral palsy)

Convention Coverage — Full Mercury Lifecycle

- Mercury supply & trade: Ban on new mines; phase-out of existing mines
- Mercury-added products: Phase-out of batteries, lamps, cosmetics, pesticides, measuring devices, dental amalgam
- Industrial processes: Restrictions in chlor-alkali, vinyl chloride, acetaldehyde production
- **ASGM (Artisanal & Small-Scale Gold Mining):** Largest global source; aim to reduce and eliminate mercury use; formalize informal sector
- Waste management: Safe storage, environmentally sound disposal, contaminated sites

Latest Developments (2023–2026)

- **COP-6 (2025):** Global phase-out of dental amalgam by 2034 (with flexibility for medical needs)
- Push to eliminate fluorescent lamps → shift to LED; mercury in cosmetics → towards zero
- **planetGOLD Programme:** UNEP-led; promotes mercury-free gold mining in ASGM sector
- Science-Policy Panel on Chemicals & Waste established
- Customs training programs (2025) to control illegal mercury trade
- Integration with Global Chemicals Framework and Biodiversity Framework

Emerging Mercury-Free Technologies

- Mercury-free gold mining: Gravity separation, borax method
- Industrial: Membrane technology replacing mercury; composite resins for dental
- Lighting: Complete transition from fluorescent to LED

14. FOREST GOVERNANCE: ITTO & UNFF

A. INTERNATIONAL TROPICAL TIMBER ORGANIZATION (ITTO)

Key Fact	Details
Established	1986 under International Tropical Timber Agreement (ITTA) 1983
HQ	Yokohama, Japan
Members	~75 countries | ~80% of tropical forests | ~90% of tropical timber trade
Governing body	International Tropical Timber Council (ITTC) — 50:50 producer:consumer voting

Objectives & Functions

- Promote Sustainable Forest Management (SFM) and legal timber harvesting

- Expand international trade in tropical timber on sustainable basis
- Timber traceability systems and forest permit guidelines to combat illegal logging
- **Strategic Action Plan 2022–2026:** Governance, investment, sustainable economies, monitoring & evaluation
- **Bioeconomy approach (emerging):** Forest-based bioeconomy; sustainable wood as renewable resource — links with circular economy

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B. UNITED NATIONS FORUM ON FORESTS (UNFF)

Key Fact	Details
Established	2000 by UN Economic and Social Council (ECOSOC)
Nature	Intergovernmental policy body; subsidiary of ECOSOC; universal membership
Objective	Promote Sustainable Forest Management (SFM)

Background & Non-Legally Binding Instrument (2007)

- Origins: IPF (1995–97) → IFF (1997–2000) → UNFF (2000)
- ~270 proposals from precursor processes led to UNFF establishment
- **First global forest agreement (2007):** Voluntary/non-binding; reduce deforestation; promote sustainable livelihoods

UN Strategic Plan for Forests 2017–2030

- 6 Global Forest Goals (GFGs) + 26 targets
- Target: Increase forest area by 3% (~120 million hectares)
- Key themes: Climate action, biodiversity conservation, sustainable livelihoods

UNFF-20 (2025) — Latest Developments

- Held in New York; focus: forest financing, forest fires, climate resilience, ecosystem valuation
- Shift: Policy → Implementation + Technology-driven approach
- New alignment: SDGs + Global Biodiversity Framework + UNFCCC
- **'Climatisation of forests' (concern):** Over-focus on carbon sequestration ignoring biodiversity and livelihoods

India's Role in Forest Governance

- Forest cover: 25.17%; increase in mangroves
- Key initiatives: Green India Mission, Aravalli Green Wall, Ek Ped Maa Ke Naam, Green Credit Programme
- **T.N. Godavarman case (India):** SC defined forest as per dictionary meaning — expanded scope of forest protection

15. CONSERVATION ORGANISATIONS: IUCN, GTF, TRAFFIC, CAWT

A. IUCN — International Union for Conservation of Nature

Key Fact	Details
Established	1948 (as IUPN) | Renamed IUCN: 1956
HQ	Gland, Switzerland
Unique structure	Includes both States (countries) AND NGOs as members
Vision	A just world that values and conserves nature
Famous for	IUCN Red List of Threatened Species

- Acts as neutral forum for governments, scientists, businesses, civil society
- Priority areas: Biodiversity, climate change, sustainable energy, green economy

B. GLOBAL TIGER FORUM (GTF)

Key Fact	Details
Established	1994 | Secretariat: New Delhi
Unique feature	Only global body exclusively for tiger conservation
Members	14 tiger range countries + UK; NGOs: WWF, IFAW, TRAFFIC
India	Project Tiger (1973); NTCA under Wildlife Protection Act 1972

Key Developments

- **Global Tiger Recovery Programme (GTRP 2.0, 2023 Thimphu):** Governance reforms, HWC management; builds on TX2 Goal (doubling tiger population)
- **International Big Cat Alliance (IBCA, 2023):** Launched by India; covers 7 big cats; HQ New Delhi; expands scope beyond tigers
- AI-based systems (PAWS) for poaching detection; drones, camera traps, GIS, radio telemetry
- **Human-Wildlife Conflict (HWC):** AI-based early warning systems; NTCA's Tigers Outside Tiger Reserves (TOTR)
- India–Nepal transboundary corridor workshops; landscape-based conservation approach

C. TRAFFIC — Wildlife Trade Monitoring Network

Key Fact	Details
Founded	1976 | HQ: Cambridge, UK
Parent bodies	WWF + IUCN (joint programme)
Nature	World's largest wildlife trade monitoring programme
India	Division of WWF-India since 1991; HQ New Delhi

Key Functions & Developments

- Monitors trade patterns; combats illegal trade in ivory, rhino horn, tiger parts
- Campaigns: 'Don't Buy Trouble' (tourists), 'Wanted Alive' (big cats)

- **SAWEN (2011):** South Asia Wildlife Enforcement Network — regional cooperation against wildlife crime
- Rhino poaching decline in India & Nepal — cited as evidence-based conservation success
- **Digital wildlife trade:** Illegal trade moving to social media and e-commerce — 'cyber-enabled wildlife crime'
- AI & ML to identify illegal wildlife products; drones, bioacoustic sensors for smart surveillance

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D. CAWT — Coalition Against Wildlife Trafficking

Key Fact	Details
Established	2005 | Nature: Voluntary public-private partnership
Focus	Illegal trade in wildlife; estimated $7.8–10 billion annually
Global rank	4th largest illegal trade globally; linked with organized crime

Key Developments

- **World Wildlife Crime Report (UNODC 2024):** Trafficking increasing since 2017; Rhino horn 29%, Pangolin scales 28%, Ivory 15%
- **Operation Thunder (INTERPOL-WCO 2025):** Conducted in 130+ countries; 30,000+ live animals seized — shows global organized crime scale
- **Coalition to End Wildlife Trafficking Online:** Tech companies + NGOs (WWF, TRAFFIC) — eliminate online illegal wildlife trade
- Wildlife trafficking linked to: Money laundering, arms trafficking, drug trade — security challenge
- AI detection tools (~90% accuracy); digital surveillance of e-commerce & social media

16. GIAHS — GLOBALLY IMPORTANT AGRICULTURAL HERITAGE SYSTEMS

Key Fact	Details
Recognised by	Food and Agriculture Organization (FAO)
Purpose	Recognize remarkable land use systems with rich biodiversity
India Sites	Koraput (Odisha) + Kuttanad (Kerala)

GIAHS Sites in India

1. Traditional Agricultural System — Koraput, Odisha

- Strong role of women in biodiversity conservation
- Preservation of indigenous crop varieties

2. Below Sea Level Farming — Kuttanad, Kerala

- **Unique feature:** Farming below sea level; developed over 150+ years; ensures food security
- Highly relevant in context of climate change and sea level rise
- **Initiative:** International Research and Training Centre for Below Sea Level Farming established

Significance

- Protects agro-biodiversity | Promotes sustainable agriculture | Enhances climate adaptation
- Preserves traditional knowledge systems and community practices.

MASTER QUICK REVISION TABLE — All Conventions

Convention	Year	HQ/Under	Key Feature
UNEP	1972	Nairobi	Leading global env. authority; UNEA highest body
UNCED (Rio)	1992	Rio, Brazil	Agenda 21, CBDR, CBD + UNFCCC adopted
CBD	1992	Montreal (SecGen)	3 objectives; Nagoya, Cartagena protocols; KMGBF
Ramsar	1971	Gland, Switz.	Wise Use; 98 sites India (2026); Montreux Record
CITES	1973	Geneva (UNEP)	3 Appendices; 40,000+ species; India 1976
CMS (Bonn)	1979	Bonn (UNEP)	Only treaty on migratory species; App. I & II
Stockholm	2001	Geneva (UNEP)	POPs — Dirty Dozen; 3 Annexes; BRS synergy
Basel	1989	Geneva (UNEP)	Hazardous waste; PIC; e-waste amendment 2025
Rotterdam	1998	Geneva	PIC for hazardous chemicals; Annex III; NOT a ban
UNCCD	1994	Bonn	3rd Rio Conv.; LDN; Great Green Wall; COP14 India
IWC (ICRW)	1946	Cambridge, UK	1986 Moratorium; ASW exception; Japan withdrew
Vienna Conv.	1985	Vienna (UNEP)	Non-binding ozone framework; Precautionary Principle
Montreal Prot.	1987	Montreal (UNEP)	ODS phase-out; 197 parties; most successful treaty
Kigali Amend.	2016	Montreal	HFC phase-down; India: freeze 2028, 85% cut 2047
Minamata	2013	Geneva (UNEP)	Mercury lifecycle; dental amalgam out by 2034 (COP-6)
ITTO	1986	Yokohama, Japan	Tropical timber; SFM; ITTC 50:50 voting
UNFF	2000	New York (ECOSOC)	SFM; Non-legally binding; 6 Global Forest Goals
IUCN	1948	Gland, Switz.	States + NGOs; Red List; neutral forum
GTF	1994	New Delhi	Only tiger body; 14 range countries; GTRP 2.0
TRAFFIC	1976	Cambridge, UK	WWF + IUCN; wildlife trade monitoring
CAWT	2005	—	Public-private; anti-wildlife trafficking; $7.8B trade
GIAHS	ongoing	FAO	Koraput + Kuttanad; agro-biodiversity heritage

Best of luck for your UPSC preparation! 🌍