

# All-Inclusive Current Affairs for Prelims 2022

## Environment Class-8

2022 Environment classes 1-7 (pages 1-102) are same as 2021 classes:

- ❑ **Videos:** Link to see videos has been provided to 2022 course subscribers
  - **Mobile app users:** Open Chat → Open PT365 chat → see links to videos
  - **Web portal users:** See description of video for links
- ❑ **PDFs:** download from <https://www.allinclusiveias.com/prelims2021>

### IPCC

#### IPCC Assessment Reports:

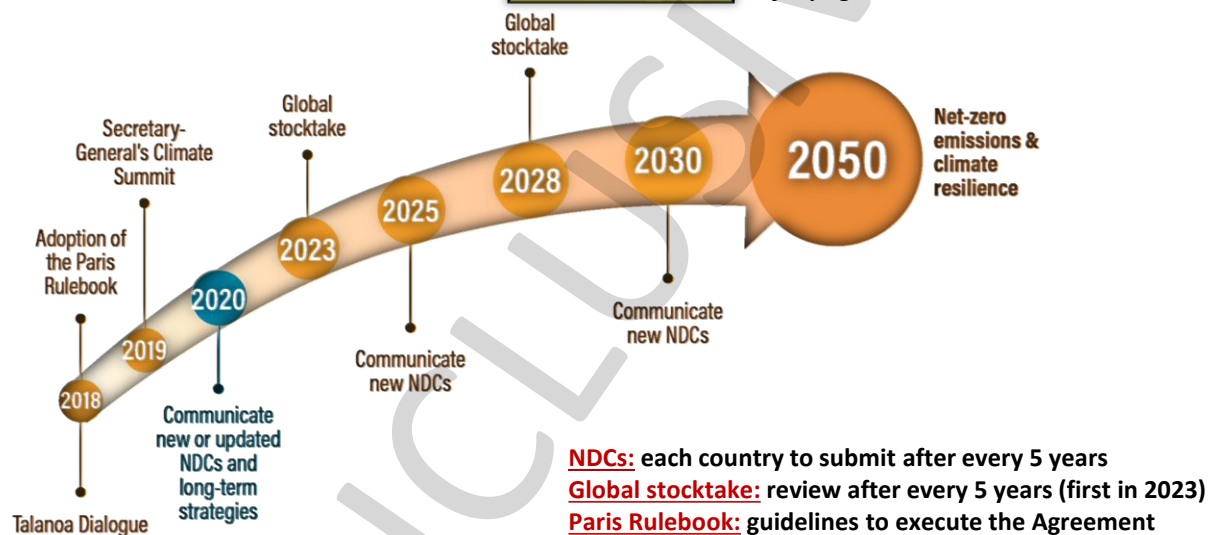
- ❑ **1990**, 1995, 2011, 2007, 2014, 2022
- ❑ 6<sup>th</sup> Assessment report (Three working groups):
  - The Physical Science Basis (WGI)
  - Impacts, Adaptation, Vulnerability (WGII)
  - Mitigation of Climate Change (WGIII)

#### IPCC and IPBES: (refer page-58)

- ❑ **India** is member of **both**
- ❑ **IPCC** has **195** member states (Eligibility: UN/WMO member)
- ❑ **IPBES** has **140** member states (Eligibility: UN member)

### CoP-26

Refer page-10



- ❑ **2015 Paris Agreement:** limit global warming to well below 2°C; try for 1.5°C
- ❑ **2018 Katowice Climate Package:** countries adopted majority of Paris Rulebook (some issues unresolved)
- ❑ **2021 Glasgow Climate Pact:** Nations completed Paris Rulebook

#### Glasgow Climate Pact: (Global agreement reached at CoP-26)

- ❑ Countries will try to keep the **1.5 °C** Paris Agreement target achievable
- ❑ Developed countries reaffirmed their pledge to provide **\$100 billion annually** to developing countries
- ❑ Nations **completed Paris Rulebook** as it relates to market mechanisms and non-market approaches
- ❑ For the first time, nations are called upon to **phase down unabated coal** power and inefficient subsidies for fossil fuels. [No targets or timelines] [phase-down (reduce) mentioned instead of phase-out (stop)]

**Unabated coal:** Use of coal that isn't mitigated with technologies to reduce CO<sub>2</sub> emissions, such as CCUS

**Article 6** of Paris agreement has three mechanisms for voluntary cooperation for Carbon market

#### Common But Differentiated Responsibility:

Developed countries have more responsibility as they are historically responsible for climate change and also have more resources to tackle it.

#### Polluter pays principle:

Those who pollute must bear costs of managing it.

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Initiatives at CoP-26 Glasgow	Related to?	India?
Breakthrough Agenda	make clean technologies affordable in each emitting sector by 2030	Yes
Zero-Emission Cars and Vans	all sales of new cars and vans to be zero emission in 2035/2040	Yes
Declaration on Forest & Land Use	Stop deforestation and land degradation by 2030	No
Forest, Agriculture and Commodity Trade (FACT)	sustainable trade of Forest/Agri commodities	No
Beyond Oil and Gas Alliance	Initiative of Costa Rica and Denmark; Phase-out oil and gas	No
Clydebank Declaration	Create zero emissions (green) shipping trade routes	No

### India's Panchamrit at CoP-26:

(At CoP-26, India presented five nectar elements of India's climate action)

1. Reach **500 GW non-fossil energy** capacity by 2030
2. **50%** of its energy requirements **from renewable** energy by 2030
3. Reduction of total projected **carbon emissions** by **one billion tonnes** from now to 2030
4. Reduction of the **carbon intensity** of the economy by **45%** by 2030, over 2005 levels
5. Achieving the target of **net zero emissions** by **2070**

## Miscellaneous

### Gap reports by UNEP:

**Production GR:** fossil fuel production levels and the global levels necessary to limit warming to 2/1.5 °C

**Emissions GR:** gap in emissions predicted to be in 2030, and where they should be for 2/1.5 °C target

**Adaptation GR:** adaptation to the impacts of climate change that has already occurred

### Infrastructure For Resilient Island States:

- by India / CDRI / other countries at Glasgow
- for climate resilient infra in SIDS
- It contributes to SAMOA Pathway (SIDS Accelerated Modalities of Action)

### Net-Zero Banking Alliance:

- Industry-led and convened by **UNEP**
- Banking element of:
  - Glasgow Financial Alliance for net zero
  - Race to Zero

Aim is to decarbonise economy

### SIDS:

- group of 58 Small Island Developing States
- 38 of them are UN member states



### Global Resilience Index:

- Assess resilience to climate risks
- by UN Office for DRR and others

### Powering Past Coal Alliance: (2017)

- aka "non-proliferation treaty" for fossil fuels
- to accelerate phase out of coal-fired power plants
- X India, China, Russia, etc**

### Clean Energy Ministerial: (refer page-89)

- Secretariat at International Energy Agency
- India, China, Russia, Japan, US, UK.....
- **India will host the meeting in 2023**

### Cotton 2040 initiative:

- To make cotton production sustainable and climate resilient
- by NGO 'Forum for the Future'

### Earthshot Prize (not by UN etc)

- every year between 2021-2030
- by Royal Foundation (UK royals)
- Winner gets £1 million to continue environmental work

### Forest Carbon Credit Stamps:

Carbon market mechanism in China

### First Movers Coalition:

- By USA and WEF at CoP 26
- Coalition of companies to promote **tech** to achieve **net zero** emissions (carbon neutrality) by 2050
- Some companies from India also? Yes

- **E-Amrit Portal:** by NITI Aayog
- for info on electric vehicles

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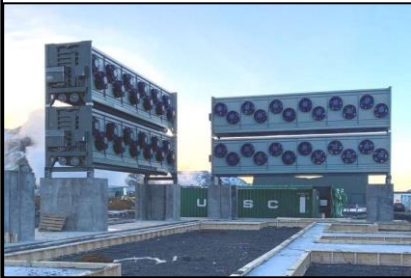
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### World Meteorological Organisation:

- 1950; **Geneva** (Switzerland)
- Greenhouse Gas Bulletin
- State of Global Climate report
- State of Climate in Asia report
- Global Atmosphere Watch Programme
- Secretariat for Water & climate coalition

### India Meteorological Department:

- 1875, Delhi, Ministry of Earth Sciences (HQ moved: Calcutta → Shimla → Pune → Delhi)
- For weather and seismology
- It is one of the six regional specialized Meteorological Centers of WMO



### ← CCUS (refer page-8)

- ❑ **ORCA** (Iceland) is world's largest DAC plant, by Climeworks & Carbfix
- ❑ **Direct Air Capture** (DAC) tech extracts CO<sub>2</sub> directly from atmosphere
- ❑ It is then mixed with water and **sequestered** into deep rocks

### River Cities Alliance: Ministry of Jal Shakti

- ❑ Platform for river cities to discuss management of urban rivers.
- ❑ It will help in **river-sensitive planning** and development.
- ❑ The Alliance is **open to all river cities** of India.

### CRISP-M tool (not CRISPR tool)

- ❑ **Climate Resilience** Information System & Planning
- ❑ by **Ministry of Rural Development** (not by MoEFCC)
- ❑ to integrate climate info in GIS based watershed planning under **MNREGA**
- ❑ Pilot project launched in 7 districts

### International Solar Alliance:

- ❑ UNGA has granted **Observer Status** to ISA
- ❑ ISA and UK have launched **Green Grids Initiative** (One Sun, One World, One Grid) to build a global green energy grid, primarily focusing on solar and wind energy.

### Observer status of UN:

- ❑ Permanent office at UN HQ
- ❑ Given to non-member states (eg Holy See), organisations (eg ISA), specialised agencies

### Specialized agencies of UN

FAO, WHO, ILO, IMF, World Bank, IAEA  
Preparatory Commission for **CTBT**  
Int Organization for **Migration**  
Int Tribunal for the **Law of the Sea**  
Int **Seabed** Authority  
Int **Telecommunication** Union  
**UN** Educational, Scientific and Cultural Organization  
Int Fund for **Agricultural Development**  
UN **Industrial Development** Organization  
World **Intellectual Property** Organization  
World **Meteorological** Organization  
Int **Criminal** Court

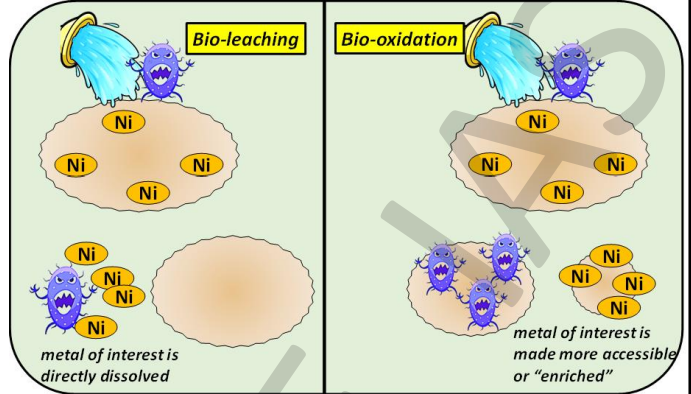
## Bioturbation

Reworking of soils by animals/plants  
e.g. burrowing, ingestion, defecation



## Biomining

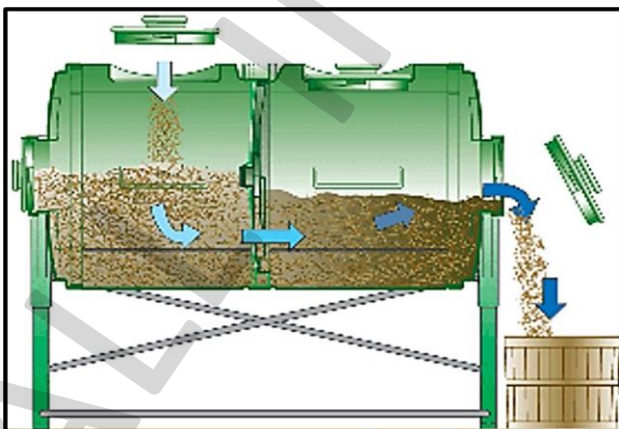
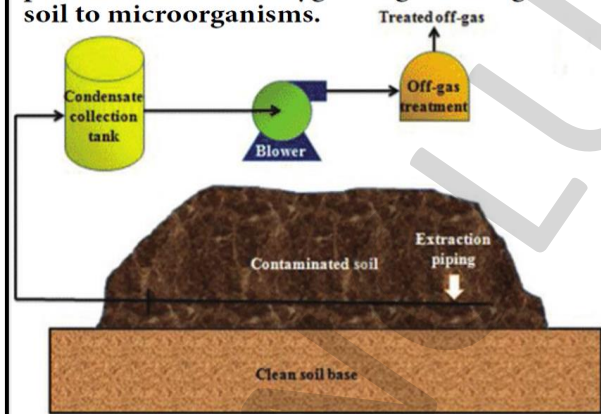
Use of microbes to extract metals of economic interest



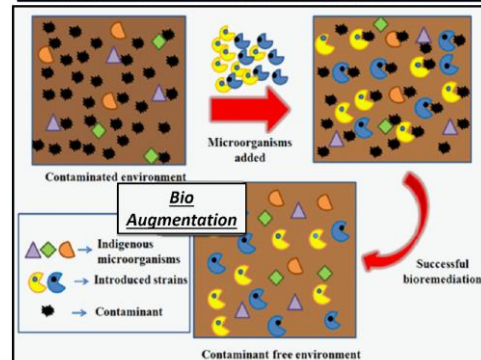
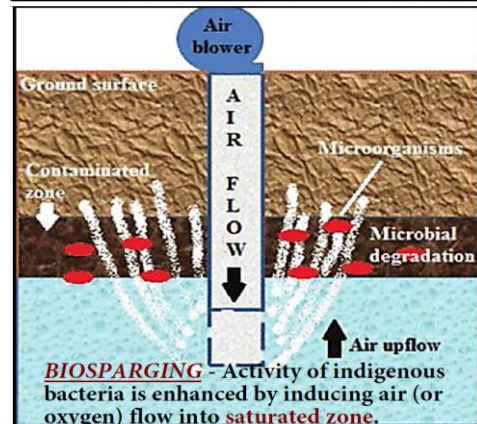
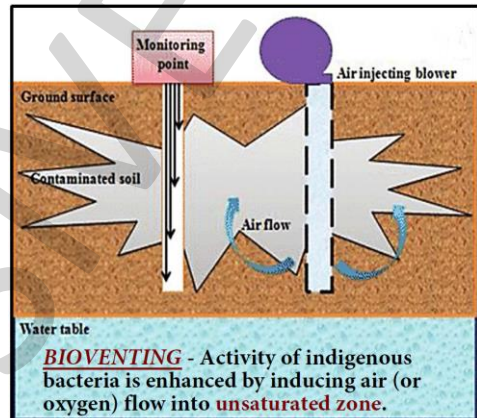
## Bioremediation

- Use of microbes to degrade pollutants
- **In-situ:** bioventing, biosparging, bioaugmentation
- **Ex-situ:** biopile, composting

**BIOPILE** - A vacuum pump pulls air through pile of soil to allow oxygen to get through soil to microorganisms.



**COMPOSTING** - It is a natural process that turns organic material into a dark rich substance called compost or humus.



Bio-Augmentation - addition of microbes (or nutrients) to enhance bioremediation process.

## Prelims 2017

In the context of solving pollution problems, what are the advantages of **bioremediation** technique ?

1. It is a technique for **cleaning up pollution** by enhancing the same **biodegradation** process that occurs in nature.
2. Any contaminant with **heavy metals** such as cadmium and lead can be **readily and completely** treated by bioremediation using microorganisms.
3. **Genetic engineering** can be used to create microorganisms specifically designed for bioremediation.

Select the correct answer using the code given below:

- (a) 1 only      (b) 2 and 3 only      **(c) 1 and 3 only**      (d) 1, 2 and 3

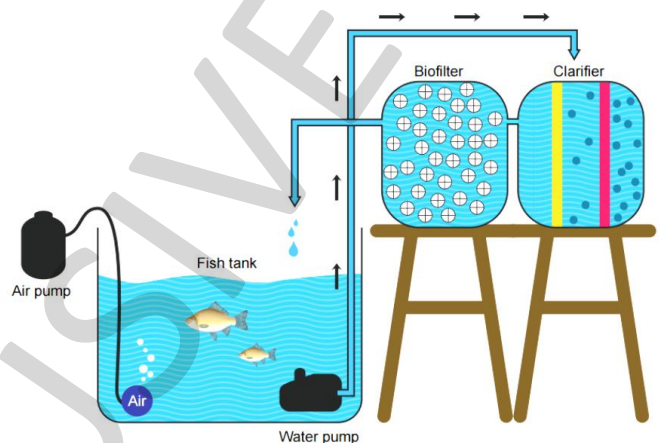
### UNESCO 'eDNA' initiative:

- to study biodiversity at UNESCO's marine World Heritage sites
- Environmental DNA**: organism's DNA found in environment (from cellular material shed by organisms via skin, excrement, etc.)
- Biomonitoring**: changes in environment/biodiversity



### Recirculating Aquaculture System:

- For high density fish cultivation
- Cleans the water and reduces ammonia toxicity



## Deep Sea Mining

### Blue Economy:

- sustainable use of **ocean resources** for economic growth.
- Fisheries, aquaculture, marine tourism, renewable ocean energy, seabed mining, off-shore oil and gas, etc.

### Deep Ocean Mission:

- For many Blue Economy initiatives
- **MoES** is the nodal ministry

### Samudrayan mission

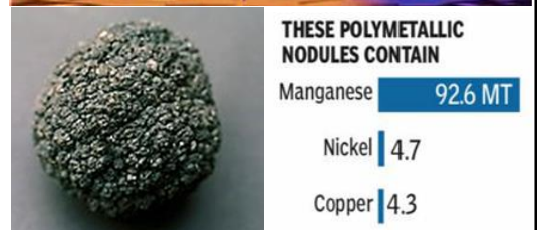
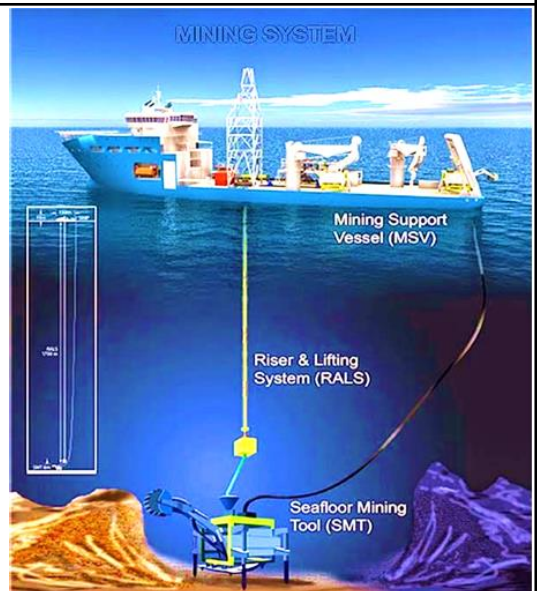
- India's first manned ocean mission
- 'Matsya 6000' underwater vehicle

### India's unique maritime position:

- 7,517 km long **coastline**
- more than 200 sea **ports**
- 23 lakh km<sup>2</sup> of **EEZ**

### Concerns about deep sea mining:

- technologically challenging
- economic viability
- biodiversity loss
- ocean pollution



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- **1982: Ocean Policy Statement** to develop technologies for ocean resources
- **1987: India** got 1.5 lakh km<sup>2</sup> in central Indian Ocean for **node exploration**
- **Sagarmala** project for port lead development.
- **O-SMART program** of Ministry of Earth Sciences.
  - Ocean Services, Modelling, Applications, Resources and Technology:
  - Regular updates on living resources, monitor seawater pollution, early weather forecast, explore Polymetallic Nodules and gas hydrates.
- **e-SANTA** online platform to connect aqua farmers and buyers
- **SAGAR** (2015) Security & Growth for All in Region for maritime cooperation in Indian Ocean region.

**United Nations Convention on Law of Sea (UNCLOS):**

- ✓ Also called as **Law of the sea** treaty.
- ✓ It resulted from 3<sup>rd</sup> UN conference on Law of Sea (1973-1982)
- ✓ Signed in **1982**; effective from **1994**.
- ✓ It defines the **rights and duties of nations** in maritime environments.

**International Sea Bed Authority (ISA):**

- ✓ To regulate mineral-related activities in the international seabed area.
- ✓ established by **UNCLOS** in **1994**.
- ✓ Headquarters: Kingston, **Jamaica**.
- ✓ Members: It has 168 members.
- ✓ USA is not a member of ISA.

**Black Carbon**

*Black carbon (soot) is increasing glacier melting in Third Pole*



**Combustion:**  $C + O_2 = CO_2$

**Incomplete combustion:**

All carbon does not react with Oxygen  
Smoke has both black and brown carbon

**Black carbon:**

from High temperature (e.g. engines)

**Brown carbon:**

from Low temperature (e.g. biomass)

**Common properties:**

- ✓ **Short-lived** climate pollutants
- ✓ Particulate/**aerosol** (not gas)
- ✓ Causes global warming
- ✓ Absorbs light and heat
- ✓ Reduces Albedo

Himalayas



**Green carbon:** carbon stored in plant biomass and soil.  
**Blue carbon:** carbons stored in coastal and marine ecosystems.

65. Consider the following statements :

- ✗ 1. Climate and Clean Air Coalition (CCAC) to Reduce Short Lived Climate Pollutants is a unique initiative of G20 group of countries.

- ✓ 2. The CCAC focuses on methane, black carbon and hydrofluorocarbons.

Which of the statements given above is/are correct ?

- (a) 1 only
- (b) 2 only
- ✓ (c) Both 1 and 2
- (d) Neither 1 nor 2

**Prelims 2017**

**Aerosol:**

“aero-solution” suspension of fine solid particles or liquid droplets in air or gas

**CCAC:** HQ: Paris.

- ☐ Formed in 2012 by UNEP and 6 countries USA, Bangladesh, Canada, Ghana, Mexico, Sweden.
- ☐ India joined it in 2019

**Short lived Climate Pollutants:**

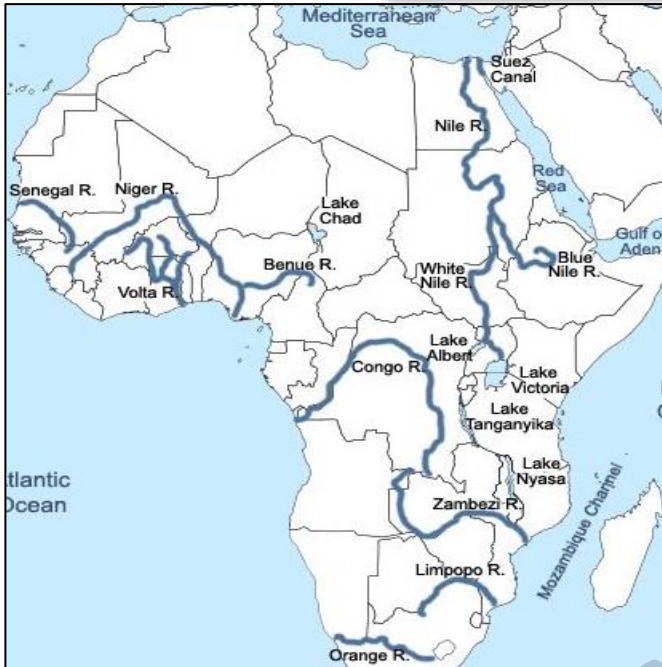
remain in atmosphere for a much shorter period of time than CO<sub>2</sub> (hundreds of years)

From CCAC website:

- ❖ Tropospheric ozone (hours-weeks)
- ❖ Black carbon (4-12 days)
- ❖ Methane (12 years)
- ❖ HFCs (29 years)

Black Carbon is second largest contributor to climate change after CO<sub>2</sub>

## Grand Renaissance Dam



### Nile river:

- World's longest river (6,650 km)
- Drainage basin covers 11 countries
- Rises south of **Equator**, flows **northward**
- Drains **into Mediterranean Sea**
- Two major tributaries:
  - White Nile: from Lake Victoria
  - Blue Nile: from Lake Tana; brings 80% water

### Grand Ethiopian Renaissance Dam (GERD)

- aka Millennium Dam / Hidase Dam
- on Blue Nile, in Ethiopia
- under construction, will be Africa's largest

### Ethiopia:

- landlocked country in Horn of Africa
- Capital: Addis Ababa



**Yangtze:**  
Asia's longest river

**Three Gorges dam:**  
World's largest hydroelectric dam (22,500 MW)

### Rivers by length:

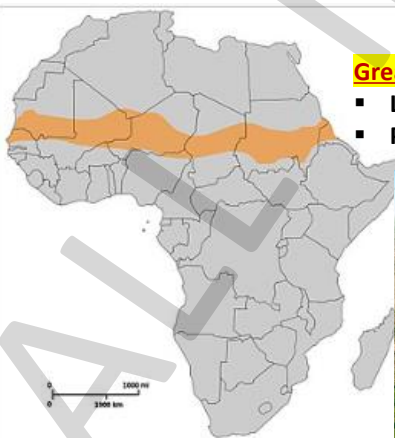
- #01 Nile
- #02 Amazon
- #03 Yangtze
- #15 Brahmaputra
- #34 Ganga

### Lake Victoria (Victoria Nyanza)

One of the African Great Lakes

By surface area, it is:

- Africa's largest lake
  - World's largest tropical lake
  - World's 2<sup>nd</sup> largest fresh water lake
- #1 is Lake Superior in N. America



### Great Green Wall (Africa)

- Launched in 2007 by the African Union
- Planting trees in Sahel region



## Cloud Seeding

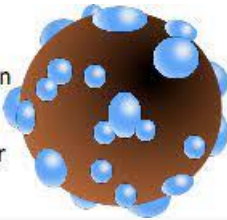
### Chemicals used:

- ✓ Silver iodide
- ✓ Potassium iodide
- ✓ Table salt
- ✓ Dry ice (solid CO<sub>2</sub>)

### Chemicals provide:

- ✗ Hydrophobic nuclei
- ✓ Hygroscopic nuclei

condensation nuclei attracting water vapor



## How cloud seeding works



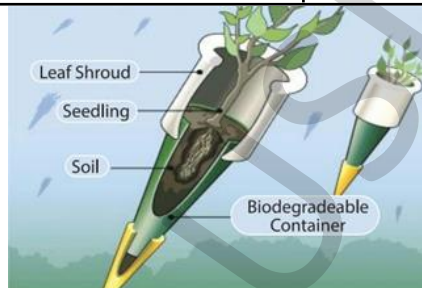
## Aerial Seeding

Seed balls / Seed bombs /  
Dart seeding / Aerial afforestation

It is a broadcast method of seeding,  
instead of precision method

Dropping seed balls / seedlings from sky for afforestation.  
Recently done for the first time in India? No

**Pros:** For difficult terrain. No ploughing/digging  
**Cons:** Low yield. Eaten by rodents.



## Aerial firefighting

Using aircraft to fight wildfires



**Note:** Cloud seeding, Aerial seeding, Aerial firefighting have been in use for decades.

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