

The real concern is the pathway suggested by IPCC for this purpose which calls for elimination of coal from power generation by the year 2050 and also drastic reduction in the use of oil and gas.

## 2. Climate Justice / Climate Adaptive Agriculture

The adverse impact of global warming and climate change can be witnessed more on some segment of society which include marginal farmers among others. They suffer from paucity of land and water sources. If any effort is made for their development, it falls under the domain of climate justice. One such initiative includes climate adaptive agriculture which includes three main components:

1. Water Harvesting on a large scale
2. Developing Resilience among farmer through sustainable management of this area.
3. Establishment of climate index Insurance which would be utilized if crop failure occurs.

This type of agriculture has been adopted by the Maharashtra government for its farmers who are frequently affected by droughts.

NAMA

NAMA - National Appropriate Mitigation Action

includes efforts made by developing nations to mitigate the impact of global warming, and to develop sustainably in which they would be helped by developed nation. for this purpose the UNFCCC has maintained a registry in which not only the name of developing <sup>Nation</sup> taking this initiative should be registered but also the develop nation <sup>would</sup> supporting them find emanation.

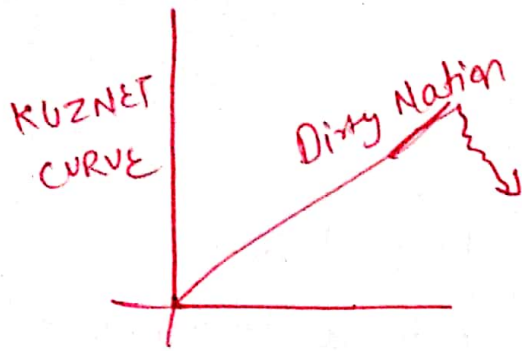
# Intended Nationally Determined Contribution (INDC)

The framework of which was prepared by Warsaw meet (2013), has been implemented under the Paris Declaration. According to it nations would have to clearly state that what measures they would be taken to mitigate the adverse impact of global warming, and how they would be attaining their targets.

India's INDC stands for energy efficiency, smart transport system, non-conventional sources of energy etc. ↓ Carbon intensity of its GDP by 33-35 %.

by the year 2030. taking 2005 as the base year.

India would be responsible for reducing



> 40% of installed energy capacity by the 2030 would be found non-fossil fuel sources.

> India would also established carbon sinks from 2.5 - 3 million tonnes of  $\text{CO}_2$  by the year 2030.

## # Green Climate Fund

The framework of this fund was decided 'in 2009' at the Copenhagen Summit. Under this fund \$100 billion would be transferred by the developed to the developing nation every year starting 2020. This fund is based on three main principles

1. Polluter Pays Principle
2. Ecological Debt
3. CDR

## # REDD+ (Reduction of Emission from Deforestation and forest degradation).

The biocarbon initiative for sustainable landscape is responsible for reducing emissions for land surface and includes the REDD+ initiative.

Under this initiative the forest cover in developing nations would be enhanced with the help of local communities. For this purpose a fund has been constituted in which the donor nation can contribute but would be managed by the World Bank.

The forest covers of India stands at 21.67% which is responsible for neutralising 11% of India's emission. On the other hand Paris Declaration calls for equalization of emission by all nations by the mid of this ~~century~~ <sup>century</sup> and for this purpose carbon sinks need to be established.

There are five big absorbers of  $\text{CO}_2$ .

1. Coconut Palm
2. Neem Tree
3. Mango Tree
4. Tamarind tree
5. Eucalyptus Tree

The Paris Declaration further emphasised on "Transparency" where each and every nation was asked to maintain an inventory of emissions in which emissions taking place from different sector would be registered and under this declaration it has been said that the technology would be transferred from developed nation to developing nation.

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Marrakesh meet COP 22<sup>nd</sup>, 2016,

it reaffirms faith in the Paris Declaration and at this meet a group of 47 nations called, climate vulnerable forum stated that they would be the first to turn their economies green with zero emission. These small Island are facing the threat of submergence due to rising sea level.

### # COP 23<sup>rd</sup>, (BONN Meet)

The COP 23<sup>rd</sup> was conducted at BONN and the figi Declaration adhered to the objectives of the Paris meet. Three important initiative were taken at this meet —

1. TALANOA Initiative → for the purpose for helping countries in order to decide their contribution.

2. KORINIVIA Joint work for Agriculture  
which would be taking measures for the adaptability of agriculture sector in the limelight of global warming and climate change.

3. POWERING PAST Coal Alliance

The objective of this Alliance to phase out the use of coal for power generation by 2050. There are 80 members in this Alliance.

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This alliance is based on the pathways suggested by IPCC.

### # COP 24<sup>th</sup> (Katowice, Poland)

The COP 24<sup>th</sup> organised at Katowice, mainly discuss the rule for implementation of Paris Declaration. The rules are mainly pertaining to determine national contribution and reporting them. As far as the Paris declaration is concerned determining targets ~~is~~ <sup>are</sup> not binding in nature but reporting emissions ~~is~~ <sup>are</sup> legally binding.

### # COP 25<sup>th</sup> (MADRID, 2019)

It also reaffirms faith in the Paris declaration but was considered to be a failure as some nations like US, S. Arabia, Australia were against the climate emission and declared objective of the Paris declaration.

Countries like India, China, Japan were also criticized not helping vulnerable nation.

Discussion were also conducted on the carbon market mechanism which was provided by the Kyoto protocol

The negative emissions of developing nations can offset the emissions of developed nation but a

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Final conclusion was not reached. The Indian company have negative emission worth 5000cr which can be sold in Carbon market.

European Union try to act as a bridge between develop and developing nation.

E.U has declared that Europe would become the first continent to be carbon Neutral. and for this purpose an initiative has been launched called "European Green New Deal"

### # Green Energy Corridor

With an allocation of 43,000 crore in the year 2013, The proposal was made to established this corridor to remove the biggest hurdle in solar power generation i.e., voltage fluctuation. Solar Park would be established in 8 state which includes Gujarat, Rajasthan, M.P, Maharashtra, T.N, Andhra Pradesh, Karnataka, and Himachal Pradesh.

The energy generated from these solar park would be transferred to National Power grid from where electricity supply would be made to these state.

This would also make National Power Grid a Smart Grid.

## # Climate & Clean Air Coalition

This Coalition was signed includes six countries which are US, Canada, Mexico, Ghana, Sweden and Finland.

The purpose is to remove short lived pollutant in atmosphere which includes HFCs, CH<sub>4</sub> and Black Carbon.

## # Green House Gases Protocol (1997)

This Protocol was signed in 1997 between the World Resources Institute and the World Business Council for Sustainable Development. The purpose was to monitor, to manage and measure emission and by virtue this protocol the industrial unit are responsible for managing their emissions.

## ⇒ Environmental Pollution

Environmental Pollution is an undesirable alteration in the physical, chemical and biological characteristic of land, water and air through natural or anthropogenic means.

## Contemporary issues of Water Pollution

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1. Great Pacific Garbage Patch In the northern and the middle part of Pacific ocean a suspended trash is present which is 2200 km in length, 800 km in breadth and 10 m in depth. It has been found due to GYRES, when two oceanic currents mingle whirling of water would take place which is referred to as GYRE. Two of the biggest GYRES are present in the Pacific ocean the east Pacific and the west Pacific GYRES. Waste which has been washed away by the oceanic current have accumulated due to GYRE formation. It consists of the fishing lines in large numbers cans, diapers etc.

The great Pacific garbage pack also consist of 2,69,000 million tonnes of plastic waste (Mismanaged plastic) which is divided into three categories first, those having a diameter of more than 200 mm are called macroplastic.

Those having a diameter between 4.75 to 200 mm called Meso PLASTIC.

Those having a diameter less than 4.75 mm called microplastics or microbeads or plastic beads.

The adverse impact of microplastic would be more as it is bio accumulative in nature and detrimental for the survival of marine organism.

Source of microplastics includes toothpaste and facial scrubs.

The biggest riverine contributor of mismanaged plastic in the oceans is the YANGTZE RIVER of China. Every year it is responsible for contributing 3,20,000 tonnes of mismanaged plastic in the Ocean. River Ganga is also a big contributor as it discharges 1,20,000 tonnes of mismanaged plastic in the ocean. But the per capita mismanaged plastic generation in India is very low. 3.2 kg/yr which is far less than the global average of 17 kg/yr. But river Ganga becomes one of the biggest contributor as half a billion people resides in the catchment area of Ganga.

The Plastic waste littered on the Coast melt under the influence of Solar Radiation and combined with natural compounds to form plastic stone called **PLASTIGOMERATE**.

On the other hand Dr. Raj Gopalan Vasudev was conferred Padmashri (2018) and called the plastic man of India developed stone from plastic waste called PLASTONE which is used as building blocks. He also made plastic road which can withstand wear & tear. by combining plastic stones with tar. On the otherhand there are a number of chemicals present in plastic products which includes BFR (Brominated fire Retardants) but the adverse impact of BFR includes Bioaccumulation and Endocrine Disruption.

Phthalates → phthalates are use for making plastic product more flexible but this is responsible for genetic disordered among children and also sterility among males.

Vinyl Chloride → responsible for the damaging nervous system.

BISPHENOL → which Act as Endocrine disruptor

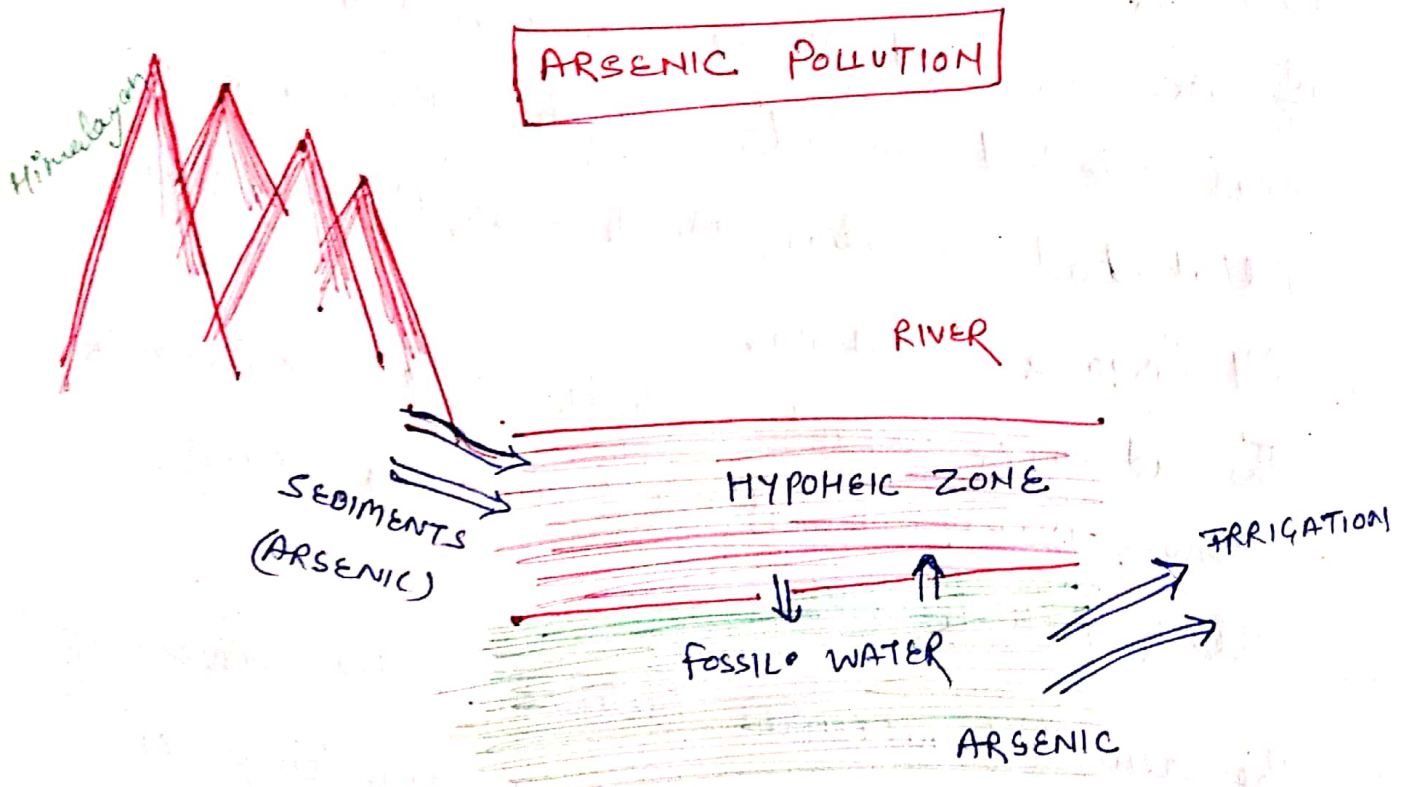
In the 2009, an initiative was taken for this and "TARA OCEANS" an expedition of Scientist was flagged off from LYONS in France with

two main objective .

1. To Study the nature

2. To prepare an Elaborate Database of Marine Organism

## # ARSENIC POLLUTION IN Northern Plains of India



The source of Arsenic is Himalayas and the Geologic process responsible for formation of Himalayas were also responsible for the presence of arsenic in the rocks of Himalayas.

When the perennial rivers originated from Himalayas they were responsible for eroding these rocks and Arsenic was washed away as a sediment by the ~~hyper~~ hyporheic zone of the river and got deposited in the underground water table where it was within the permissible limit for drinking. Post green revolution, underground water used for irrigation purpose enhancing the concentration of Arsenic and it became a pollutant. The areas effected include Punjab, UP (Kanpur, Unnao, Allahabad & Balia), North Bihar, Murshidabad, 24 Pargana, Kolkata.

The adverse impact include Melanosis (skin is turning Dark), Keratosis (Skin - Dry + scaly), Black foot disease.

The remedial measures include water harvesting which would be reducing over dependency on underground water table.

- The pattern of irrigation can be changed, Drip & Sprinkle should be used.
- Changing of crop pattern.

→ Shallow Tubewells can be used as a precautionary measure

# Storm Water Drains