

**18– 02 – 2022**

**News: World Sustainable Development Summit**

- Recently, the Prime Minister addressed The Energy and Resources Institute's (TERI) World Sustainable Development Summit.

## **World Sustainable Development Summit**

- The World Sustainable Development Summit (WSDS) is the **annual flagship event of TERI.**
- It was **earlier known as Delhi Sustainable Development Summit** instituted in 2001.
- It is the **only Summit on global issues, taking place in the developing world.**
- It has been conceptualized as a **single platform to accelerate action towards sustainable development and climate change.**
- It aims **to bring together global leaders and thinkers in the fields of sustainable development, energy and environment sectors on a common platform.**

# India's Stand at the Summit

## Equitable Energy Access

- India has fulfilled its commitments by ensuring that equitable energy access to the poor remains a cornerstone of its environmental policy.
- These included initiatives such as 90 million households getting access to clean cooking fuel under the Ujjwala Yojana scheme.
- And farmers being encouraged to set up solar panels under the PM-KUSUM scheme where farmers could use and sell surplus power to the grid, which would promote sustainability and equity.

## Reducing Emissions

- The Prime Minister also discussed the LED bulbs distribution scheme (UJALA) that has been running for over seven years that had reportedly saved close to 220 billion units of electricity and prevented 180 billion tonnes of carbon dioxide emissions per year.
- The National Hydrogen Mission aims to tap into 'green hydrogen' and it was up to the academic and research institutes such as TERI to come up with scalable solutions.

## Ramsar Sites

- PM mentioned international recognition for India's efforts by the International Union for Conservation of Nature (IUCN) and **India now having 49 Ramsar sites (wetlands) spread over more than 1 million hectares.**
- India is **a megadiverse country.** With **2.4%** of the world's land area, India **accounts for nearly 8% of the world's species.**

## Restoration of Degraded Land

- Restoring degraded land has been one of the main focus areas since 2015 and **more than 11.5 million hectares have been restored.**
- India is **on track to achieve the national commitment of Land Degradation Neutrality under the Bonn Challenge.**
- India firmly believes in fulfilling all its commitments made under the UNFCCC. India also raised its ambitions during CoP-26 at Glasgow.
- For example, India announced that it will reach **carbon neutrality by 2070** by 2030.

## Coordinated Actions

- Sustainability **requires coordinated action for the global commons.** India's efforts have recognised this inter-dependence.

- Through the International Solar Alliance, India's aim is "One Sun, One World, and One Grid".
- The world must work towards ensuring availability of clean energy from a world-wide grid everywhere at all times. This is the "whole of the world" approach that India's values stand for.
- It also urged countries to act on the basis of globally agreed rules taking into account the principles of equity and Common but Differentiated Responsibilities and Respective Capabilities (acting on climate change based on national circumstances).
- The Paris Agreement goals cannot be reached unless equity is implemented by all countries staying within their fair share of the global carbon budget.

### **Infrastructure for Resilient Island States**

- The Coalition for Disaster Resilient Infrastructure (C.D.R.I.), aims to build strong infrastructure in areas prone to frequent natural disasters.
- On the side-lines of CoP-26, India also launched an initiative called "Infrastructure for Resilient Island States".
- The Island Developing States are the most vulnerable and hence need urgent protection.

## **Launched LIFE - Lifestyle for Environment Initiative**

- LIFE is about making lifestyle choices to improve our planet. LIFE will be a coalition of like-minded people across the world who will promote sustainable lifestyles.
- They will be called 3Ps - Pro Planet People. This global movement is the Coalition for LIFE.

## **Pradhan Mantri UJJWALA Yojana (PMUY)**

### **Background**

- Large section of Indians, especially women and girls, are exposed to severe Household Air Pollution (HAP) from the use of solid fuels such as biomass, dung cakes and coal for cooking.
- A report from the Ministry of Health & Family Welfare places HAP as the second leading risk factor contributing to India's disease burden.
- According to the World Health Organization, solid fuel use is responsible for about 13% of all mortality and morbidity in India (measured as Disability-Adjusted Life Years), and causes about 40% of all pulmonary disorders, nearly 30% of cataract incidences, and over 20% each of ischemic heart disease, lung cancer and lower respiratory infection.

## **Scheme Features**

- Pradhan Mantri Ujjwala Yojana (PMUY) is a **Centrally Sponsored Scheme**, which aims to **provide LPG (liquefied petroleum gas) connections** to poor households.
- Under the scheme, an **adult woman member of a below poverty line** family identified through the Socio-Economic Caste Census (SECC) is given a **deposit-free LPG connection** with financial assistance of Rs **1,600 per connection** by the Centre.

## **Identification of households**

- **Eligible households will be identified in consultation with state governments and Union territories.**

## **Implementing agency**

- The scheme is being implemented by the **Ministry of Petroleum and Natural Gas.**

## **Target**

- The target of UJJWALA 1.0 was to **provide 5 crore LPG gas connections** to 5 crore women.

- Subsequently, the scheme was expanded in April 2018 to include women beneficiaries from seven more categories including SC, ST, most backward classes, tea garden, forest dwellers and Islands.
- Later, the target was revised to 8 Crore LPG connections which were achieved in August 2019, seven months ahead of the target date.
- But, only three States have become kerosene free. These include- Haryana, Punjab and Andhra Pradesh.
- Union Territories that have become kerosene-free are the Union Territories of Delhi, Chandigarh, Dadra & Nagar Haveli and Daman & Diu, Andaman & Nicobar Island and Puducherry.

### **Second phase of UJJWALA**

- Recently, the second phase of Pradhan Mantri Ujjwala Yojana – Ujjwala 2.0 was launched.
- In the Union budget for Financial Year 2021-22, a provision for an additional one crore LPG connection under the Pradhan Mantri Ujjwala Yojana was announced.
- These one crore additional connections under Ujjwala 2.0 aim to provide deposit-free LPG connections to those low-income families who could not be covered under the earlier phase of this scheme.

- Along with a deposit free LPG connection, Ujjwala 2.0 will provide **first refill and hotplate free of cost to the beneficiaries.**
- Also, the enrollment procedure will **require minimum paperwork.**
- In Ujjwala 2.0, **migrants will not be required to submit ration cards or address proof.**
- A **self-declaration for both ‘family declaration’ and as a ‘proof of address’ will suffice.**
- Ujjwala 2.0 will help achieve the Prime Minister’s vision of universal access to LPG.

## **PM Kisan Urja Suraksha Evam Utthaan Mahabhiyan (PM KUSUM)**

- PM Kisan Urja Suraksha Evam Utthaan Mahabhiyan (PM KUSUM) scheme **seeks to replace all diesel pump-sets with solar pumps and the excess power generated through solar panels will be purchased by state governments at a price that gives the farmer a good profit.**
- It is launched by **Ministry of New and Renewable Energy (MNRE)** under the **National solar Mission** which targets to **install 100 GW solar powers by 2022.**



- State Nodal Agencies (SNAs) of MNRE will coordinate with States/UTs, Discoms and farmers for implementation of the scheme.
- Also, to develop solar power, bids are invited from large business players to develop solar parks.
- Installation of grid-connected solar power plants each of capacity up to 2 MW in the rural areas.
- Installation of standalone off-grid solar water pumps to fulfill irrigation needs of farmers not connected to the grid.
- Solarization of existing grid-connected agriculture pumps to make farmers independent of grid supply and also enable them to sell surplus solar power generated to DISCOMs and get an extra income.
- Solarization of tube-wells and lift irrigation projects of the Government sector.
- Encouraging farmers to grow “Solar Trees” on their lands. The Solar Tree is much like that of a real tree, where solar panels (act like leaves) connected through metal branches using sunlight to make energy.
- The first farm based solar power plant under the Prime Minister’s Kisan Urja Suraksha Evam Utthaan Mahabhiyan (KUSUM) scheme has come up in Jaipur district’s Kotputli tehsil with a provision for production of 17 lakh units of electricity every year.

- For ease of availability of finance the Reserve Bank of India included the three components of the Scheme under Priority Sector Lending Guidelines.

The approved scheme comprises of three components:

- Setting up of 10,000 MW of decentralised ground/stilt-mounted grid- connected solar or other renewable energy based power plants.
- Installation of 17.5 lakh standalone solar agriculture pumps.
- Solarisation of 10 lakh grid-connected solar agriculture pumps.

## **Unnat Jyoti by Affordable LED's for All (UJALA)**

- UJALA was launched in 2015 with a target of replacing 77 crore incandescent lamps with LED bulbs and to nullify the high-cost of LEDs that acted as a barrier previously in the adoption of energy-efficient systems.
- UJALA is implemented by Energy Efficiency Services Limited (EESL), a joint venture of PSUs under Ministry of Power.
- The scheme was implemented to set up a phase-wise LED distribution.
- The objective is to promote efficient lighting, enhance awareness on using efficient equipment that will reduce electricity bills and preserve the environment.
- It is the world's largest domestic lighting project.

## Achievements

- Through the UJALA initiative, over 36.13 crore LED bulbs have been distributed across India. This has resulted in an estimated energy savings of 46.92 billion kWh per year, avoided peak demand of 9,394 MW, and an estimated Green House Gas (GHG) emission reduction of 38 million tons of CO<sub>2</sub> annually.
- The reduced electricity bills add to a household's disposable income and lifetime savings, thus improving the quality of life, generating prosperity in local communities and in expanding energy access to all.
- Apart from this, the Government of India initiated the Gram Swaraj Abhiyan (GSA) in 2018, which was aimed at the promotion of social harmony by appraising rural communities of various government welfare schemes and initiatives. As a part of it, villages with poor households were able to buy LED bulbs for a special price under UJALA programme.

## National Hydrogen Energy Mission

- The focus of National Hydrogen Energy Mission will be on generating hydrogen from green power sources while the approach thus far has relied on the use of fossil fuels.

- India is **already keen on developing a hydrogen economy.**
- It is a participant, one among **16 nations or groupings, in the Mission Innovation Renewable and Clean Hydrogen Challenge.**
- A report titled 'India Country Status Report on Hydrogen and Fuel Cells', launched by the Department of Science and Technology in mid-October last year, outlines **the benefits of hydrogen in comparison to conventional fuels and with respect to tackling challenges in the energy sector.**
- The use of hydrogen **can reduce the CO<sub>2</sub>** related emissions significantly at the point of use and if green hydrogen is used then there is capability to decarbonize the entire value chain, enabling reduced emissions and climate change threats.
- It can even decarbonize the sectors where it is difficult to reduce emissions, says the report.
- Funding agencies, which include the **Ministry of Science and Technology, CSIR laboratories, Ministry of Petroleum and Natural Gas, Defence Research and Development Organisation, Indian Space Research Organisation, and oil and gas companies** are supporting projects centered around hydrogen production, storage, and utilisation for power generation and transportation applications.

- The focus of the research is said to be around the development of new materials, processes, components, and systems.
- A 'Hydrogen Valley Platform' is also in the works, courtesy the Department of Science and Technology. The platform will look to create an integrated hydrogen ecosystem covering production, storage, distribution and end use.
- As for applications, transportation is high up the list for hydrogen use. The transportation sector is a major consumer of oil, and India is heavily dependent on imports in this area.
- Vehicles powered by hydrogen are said to be best-suited for use in the long haul, heavy transport, and commercial fleets. In Germany and Italy, plans are already underway to power trains with hydrogen.
- By 2050, nearly 80% of India's hydrogen is projected to be 'green' – produced by renewable electricity and electrolysis.

## Types of Hydrogen

### Grey Hydrogen

- Grey Hydrogen is extracted from Hydrocarbons (Fossil fuels and natural gases). It constitutes the major chunk of India's Hydrogen production. Carbon dioxide is the major byproduct of Grey Hydrogen and so is considered less eco-friendly.

## Blue Hydrogen

- Blue Hydrogen is also extracted from Hydrocarbons as Grey Hydrogen. The byproduct is captured and stored. So, Blue Hydrogen is considered to be better than Grey Hydrogen.

## Green Hydrogen

- Green Hydrogen is generated from Electricity generated out of renewable sources like solar energy and Wind. Thus generated electricity is passed into water, which is split into Hydrogen and Oxygen. Byproducts of Green Hydrogen are Water and Water Vapor. It is favoured by policy makers.
- The 'production cost' of 'Green hydrogen' has been considered to be a prime obstacle.
- According to studies by the International Renewable Energy Agency (IREA), the production cost of this 'green source of energy' is expected to be around \$1.5 per kilogram (for nations having perpetual sunshine and vast unused land), by the year 2030.

## Pink hydrogen

- Similar to green hydrogen, pink hydrogen is made via electrolysis, but using nuclear energy as its source of power.

## Yellow hydrogen

- Another type of hydrogen made by electrolysis is yellow, where electrolysis is achieved solely through solar power (unlike green which could use a combination of renewable energy sources such as wind or solar).

## Policy Challenges

- One of the biggest challenges faced by the industry for using hydrogen commercially is the economic sustainability of extracting green or blue hydrogen. The technology used in production and use of hydrogen like Carbon Capture and Storage (CCS) and hydrogen fuel cell technology are at nascent stage and are expensive which in turn increases the cost of production of hydrogen.
- Maintenance costs for fuel cells post-completion of a plant can be costly.
- The commercial usage of hydrogen as a fuel and in industries requires mammoth investment in R&D of such technology and infrastructure for production, storage, transportation and demand creation for hydrogen.

## Bonn Challenge

- Bonn Challenge is a global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030.
- It was launched in 2011 by the government of Germany and IUCN.
- It was later extended by New York Declaration on Forests at the 2014 UN Climate Summit.

### News: Green Hydrogen Policy

- Recently, government has notified the Green Hydrogen Policy.

## National Hydrogen Policy

### Background

- Hydrogen and Ammonia are envisaged to be the future fuels to replace fossil fuels.
- Production of these fuels by using power from renewable energy, termed as green hydrogen and green ammonia, is one of the major requirements towards environmentally sustainable energy security of the nation.



- Government of India is taking various measures to facilitate the transition from fossil fuel / fossil fuel based feed stocks to green hydrogen / green ammonia.

The policy provides as follows:

- Green Hydrogen / Ammonia manufacturers may purchase renewable power from the power exchange or set up renewable energy capacity themselves or through any other, developer, anywhere.
- Open access will be granted within 15 days of receipt of application.
- The Green Hydrogen / Ammonia manufacturer can bank his unconsumed renewable power, up to 30 days, with Distribution Company and take it back when required.
- Distribution licensees can also procure and supply Renewable Energy to the manufacturers of Green Hydrogen / Green Ammonia in their States at concessional prices which will only include the cost of procurement, wheeling charges and a small margin as determined by the State Commission.
- Waiver of inter-state transmission charges for a period of 25 years will be allowed to the manufacturers of Green Hydrogen and Green Ammonia for the projects commissioned before 30<sup>th</sup> June 2025.

- The manufacturers of Green Hydrogen / Ammonia and the renewable energy plant shall be given connectivity to the grid on priority basis to avoid any procedural delays.
- The benefit of Renewable Purchase Obligation (RPO) will be granted incentive to the hydrogen/Ammonia manufacturer and the Distribution licensee for consumption of renewable power.
- To ensure ease of doing business a single portal for carrying out all those activities including statutory clearances in a time bound manner will be set up by MNRE.
- Connectivity, at the generation end and the Green Hydrogen / Green Ammonia manufacturing end, to the ISTS for Renewable Energy capacity set up for the purpose of manufacturing Green Hydrogen / Green Ammonia shall be granted on priority.
- Manufacturers of Green Hydrogen / Green Ammonia shall be allowed to set up bunkers near Ports for storage of Green Ammonia for export / use by shipping. The land for the storage for this purpose shall be provided by the respective Port Authorities at applicable charges.
- The implementation of this Policy will provide clean fuel to the common people of the country. This will reduce dependence on fossil fuel and also reduce crude

oil imports. The objective also is for our country to emerge as an export Hub for Green Hydrogen and Green Ammonia.

- The policy promotes Renewable Energy (RE) generation as RE will be the basic ingredient in making green hydrogen.

**News:** India, UAE to sign trade pact today

- India and the United Arab Emirates will sign the first ever bilateral Free Trade Agreement.
- The Free Trade Agreement (FTA) – Comprehensive Economic Partnership Agreement (CEPA) – is expected to be in focus during a virtual summit between Prime Minister Narendra Modi and the Crown Prince of Abu Dhabi Sheikh Mohamed bin Zayed al Nahyan.

**News:** India's first water taxi service inaugurated in Maharashtra

- Recently, India's first water taxi service was inaugurated in Maharashtra connecting the Navi Mumbai area to mainland Mumbai.
- The ₹8.37crore project will presently operate on three routes and the State and the Centre have shared the expenditure.
- The three routes include Belapur to Ferry Wharf – the domestic cruise terminal, Belapur to Elephanta Caves and Belapur to JNPT.

- In the initial stage, seven speedboats — each with a capacity of 10 to 30 passengers —and one catamaran with passenger capacity of 50 to 60 will run on these routes.