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Energy Needs in the Context of Climate Crisis

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Why in News

Recently, on the occasion of the **National Technology Day**, **Padma Vibhushan** Dr. Anil Kakodkar conveyed a message to the people of India about **‘Dealing with energy needs in the Context of Climate Crisis’**.

- National technology day marks the **anniversary of the Pokhran Nuclear Tests of 1998** that strengthened Indian national security.
India successfully test-fired its Shakti-1 nuclear missile in operation called Pokhran-II, also codenamed as **Operation Shakti**.
- After the tests, India has entered into many **international agreements to promote nuclear commerce for peaceful purposes and to secure energy security** through nuclear energy.
Nuclear commerce in general refers to a worldwide trade centered on nuclear energy.

Key Points

- **HDI and Energy Consumption:**
 - Dr. Kakodkar highlighted the correlation between **Human Development Index** (HDI) and **Per Capita Energy Consumption** all over the world.
 - As per the statistics, countries with higher HDI have higher per capita consumption of energy.
 - HDI emphasizes that **people and their capabilities should be the ultimate criteria for assessing the development** of a country, not economic growth alone.

- **Energy and Climate Security:**

However, **developing countries** like India, on the other hand, face the **challenge of choosing between energy security and climate security**. It is important to strike a balance between enhancing the quality of human life as well as keeping a control over the climate crisis.

- **Emission Targets:**

- Various studies have been conducted on how to control **carbon dioxide (CO₂)** emissions, which is a **serious threat** to the environment.
- As per the report of the **Intergovernmental Panel on Climate Change** (IPCC), “staying below **1.5 degree increase in 2100** will require cuts in **Greenhouse Gases** (GHGs) emissions of 45% below 2010 levels by 2030 and to net zero by 2050”.

- **Decarbonisation:**

- **Zero emission targets** can be easily met by the use of **nuclear energy**. It can also **reduce the cost of deep decarbonisation**.
- Decarbonising means **reducing carbon intensity**, i.e. reducing the emissions per unit of electricity generated (often given in grams of carbon dioxide per kilowatt-hour).
- Decarbonisation is **essential** since the demand for electric power from industries/commercial sectors is high.
- It is possible by **increasing the share of low-carbon energy sources**, particularly **renewables** like **solar, hydro** and biomass (**Biofuels**) together with nuclear which can greatly contribute in achieving zero emissions.

- **Comparison:**

- **Japan** saw the **negative effects of nuclear energy** (bombing at Hiroshima and Nagasaki) yet it has drafted an energy plan, to **generate 20% to 22%** of their total energy consumption as **nuclear energy** and to reduce CO₂ emissions by 2030.
- **Germany** had also planned to **cut GHG emissions by 2020** which has allotted huge amounts of production of renewable energy.
- **India**, in order to decarbonise the energy consumption, needs a **30-fold increase in renewable energy, 30-fold increase in nuclear energy** and **doubling of thermal energy** which would make **70% of energy carbon free**.

- **Actions Required:**

Different levels of consumption strategy need to be observed by different countries **based on their HDI** so that they can actively contribute towards low/zero emissions. **For example:**

- Countries with **high HDI**, should reduce their energy consumption since it may not affect their HDI, much. They should also decarbonise their electricity generation.
- Countries with **moderate HDI** should focus on non-fossil electricity consumption.
- Countries with **low HDI** should be able to provide subsidised sources of cleaner energy to their citizens.

- **Concerns and Solutions:**

- **Management of nuclear waste**, that is produced during energy generation, is a major **concern**.
- To **tackle** the problem, India adopts the policy of '**Nuclear Recycle Technology**'.
 - Under it, the **nuclear fuel**- Uranium, Plutonium etc, once used for generation of energy, is **reused as a resource** material by the commercial industries to be recycled.
 - **More than 99% of nuclear waste is reused** as the waste management program in India prioritises recycling.

Source: PIB