Paddy Stubble Use by PEDA

Why in News

The Punjab Energy Development Agency (PEDA) in association with the Govt. of Punjab, is creating alternatives for paddy stubble utilisation.

This includes setting up biomass power plants and producing Bio CNG from the paddy stubble biomass.

Punjab Energy Development Agency

It was formed in Sept. 1991 as a state nodal agency for promotion and development of renewable energy programmes/projects and energy conservation programme in the state of Punjab. PEDA is registered as a Society under the Societies Act of 1860.

Key Points

- **Biomass Power Plants**: PEDA has set up 11 biomass power plants where 97.50 mega watts (MW) of power is generated. In these plants, 8.80 lakh metric tonnes of paddy stubble is used annually to generate power.

- **Bio CNG**: Eight projects of Bio CNG are under execution in the state. These will need around 3-lakh metric tonnes of paddy stubble annually. *India’s largest Bio CNG project*, which will produce 8,000 m cube biogas per day (equivalent to 33.23 tonnes of Bio CNG per day) is under execution at Lehragaga tehsil in Sangrur district. The project is expected to be commissioned by March 2021.

- **Bioethanol Project**: A Bioethanol project of 100 kilolitre is being set up at Talwandi Sabo in Bathinda. This will require 2 lakh metric tonnes of paddy stubble annually. *Bioethanol* can be used to run vehicles after blending with diesel and petrol.
• **Advantages of these Projects:** After commissioning of all these projects, Punjab will be able to utilise 1.5 million tonnes (7% of the total) paddy stubble.
  
  - **Farmers’ income:** Farmers can benefit hugely if they can **sell paddy stubble to the industry** instead of burning it.
  - **Environment benefits:** It will reduce the pollution caused by stubble burning and also preserve the fertility of the soil which is lost due to burning paddy stubble.
  - **Entrepreneurship:** The youth, particularly engineers, graduates in science and technology can start such projects under the ‘**start-up’ concept**, which will create entrepreneurship among them.
  - **Employment:** Educated unemployed youth in rural Punjab where such projects will be set up can get big **job opportunities**.

• **Limitations:** Current usage of stubble in these plants is very small compared to the generation of stubble. Punjab needs **varieties of stubble-based industry** where more and more stubble is consumed.

• **Issues involved with Paddy Stubble:**
  
  - Aboutl 20 million tonnes of paddy stubble or paddy crop residue is generated in Punjab annually. **Less than 5% is being utilized** in Bio-gas, Biomass power generation or other environment-friendly uses. The main mode of getting rid of this stubble is **stubble burning**.
  
  Stubble Burning is a major cause of concern because of environmental and health reasons.

  Stubble burning is considered to be one of the **factors responsible for smog in Delhi**.

  - The burning of stubble **reduces the soil fertility**, besides polluting the environment.
  
  - Additionally, the **heat generated** by stubble burning penetrates into the soil, leading to the loss of moisture and useful microbes.
• Other alternatives to utilize paddy stubble:
  ◦ **Torrefaction:** *Torrefaction* is a thermal process to convert biomass into a coal-like material, which has better fuel characteristics than the original biomass.
  ◦ **Fertilizer:** The stubble can be used for preparation of the **high-grade organic fertilizers** by mixing with cow dung and few natural enzymes.
  ◦ **Mechanized Management:** Stubble can be managed in three ways — by pressing the left over stubble under the earth; sowing wheat directly in the standing stubble in the fields and thirdly, by collecting it in bundles. This can be aided by use of machines like:
    ■ **Super SMS (Straw Management System):** It cuts and spreads the straw in uniform manner in the field at the time of harvesting of paddy.
    ■ **Happy Seeder:** It can sow wheat directly in such fields in standing paddy stubble (the height of which remains around 18 inches after cutting with Super SMS).
    ■ **Super Seeder:** It is more advanced and it ploughs standing paddy stubble in soil and sows wheat seed simultaneously in a single operation after harvesting.

**Government Initiatives**

• **Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue** - It is a Central Sector Scheme that was launched by the Government of India to tackle air pollution and to subsidize machinery required for in-situ management of crop residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi.

• **SATAT Scheme: Sustainable Alternative Towards Affordable Transportation (SATAT) scheme** was launched by the Minister of Petroleum and Natural Gas. Its objectives include reducing pollution from burning of agricultural / organic waste and utilising more than 62 million metric tonnes of waste generated every year in India.

• The **Punjab government** has provided **74,000 subsidised machines** called Super SMS, Happy Seeder and Super Seeders to the farmers for stubble management after harvesting.

**Way Forward**

• The government must help the youth in setting start-ups for stubble utilization by getting sanctioned loans and providing a market.
• Joint efforts are required on the part of the state, Centre and industries, including public and private participation, to convert all of Punjab’s stubble into farmers’ income. **Stubble-based projects** can be set up at the block-level to manage stubble of that bloc.

• An expansion of schemes like the **Mahatma Gandhi National Rural Employment Guarantee Act** (MGNREGA) for harvesting and composting of stubble will help to resolve the dual problem of unemployment and stubble burning.

**Source:** IE