



## Paddy Stubble Use by PEDA

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### Why in News

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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

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- **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:**
  - About 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

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- **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

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- 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**