



## Stubble Burning

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This article is based on **“Wealth from the Stubble”** that was published in The Indian Express on 07/11/2019. It talks about the issues and challenges related to stubble burning.

Recently, the Supreme Court had ordered the Centre to prepare a comprehensive national scheme, in consultation with the States, within three months to wean small and marginal farmers away from stubble burning. **Air pollution** in Delhi NCR has now become a familiar story, repeated with minor variations every year, mainly aggravated by stubble burning in Punjab and Harayana.

### Why Stubble Burning?

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Stubble (parali) burning is the act of setting fire to crop residue to remove them from the field to sow the next crop.

In order to plant next winter crop (Rabi crop), farmers in Haryana and Punjab have to move in a very short interval and if they are late, due to short winters these days, they might face considerable losses. Therefore, burning is the cheapest and fastest way to get rid of the stubble.

- If parali is left in the field, pests like termites may attack the upcoming crop.
- The precarious economic condition of farmers doesn't allow them to use expensive mechanised methods to remove stubble.

### Causes of the Stubble Burning

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- **Technology:** The problem arises due to the use of **mechanised harvesting** which leaves several inches of stubble in the fields.
  - Earlier, this excess crop was used by farmers for cooking, as hay to keep their animals warm or even as extra insulation for homes.
  - But, now the stubble use for such purposes has become outdated.

- **Adverse Impact of Laws:** Implementation of the **Punjab Preservation of Subsoil Water Act (2009)** made the time period of stubble burning coincident **with the onset of winter** in Northern India.
  - Late transplanting of paddy during Kharif season to prevent water loss as directed by **PPSW Act (2009)** had left farmers with little time between harvesting and preparing the field for the next crop and hence farmers are resorting to the burning of stubble.
- **High Silica Content:** Rice straw is considered **useless as fodder** in the case of non-basmati rice, because of its **high silica content**.

## Effects of Stubble Burning

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- **Pollution:** Open stubble burning emits large amounts of toxic pollutants in the atmosphere which contain harmful gases like methane (CH<sub>4</sub>), Carbon Monoxide (CO), Volatile organic compound (VOC) and carcinogenic polycyclic aromatic hydrocarbons.
  - After the release in the atmosphere, these pollutants disperse in the surroundings, may undergo a physical and chemical transformation and eventually adversely affect human health by causing a thick blanket of smog.
- **Soil Fertility:** Burning husk on ground destroys the nutrients in the soil, making it less fertile.
- **Heat Penetration:** Heat generated by stubble burning penetrates into the soil, leading to the loss of moisture and useful microbes.

## Wealth From Stubble

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- From parali (stubble), **high-grade organic fertilizers** can be prepared by mixing with cow dung and few natural enzymes.
  - The total amount of nitrogen, phosphorous, potassium and sulphur in the parali burnt annually in Northwest India is about seven lakh tonnes, valued at Rs 1,000 crore.
  - Along with the above mentioned nutrients, organic carbon is also destroyed during stubble burning.
  - These nutrients, if successfully utilized in organic manures, can also reduce the risk of cancer in Punjab by reducing the levels of carcinogens caused by chemical fertilizers in soil.
- Using **straw for electricity generation** is another productive way of generating wealth from residue.
  - **USA-based New Generation Power International** has proposed to set up **1000 MW** biomass energy generating plants in Punjab to address stubble burning.
  - The company plans to set up 200 plants, each having 5 MW capacity, which will use the stubble as raw material.

## Chhattisgarh Model

- An innovative experiment has been undertaken by the Chhattisgarh government by setting up **gauthans**.  
A gauthan is a dedicated five-acre plot, held in common by each village, where all the unused parali is collected through parali daan (people's donations) and is converted into organic fertiliser by mixing with cow dung and few natural enzymes.
- The scheme also generates employment among rural youth.
- The government supports the transportation of parali from the farm to the nearest gauthan.
- The state has successfully developed 2,000 gauthans.

## Way Forward

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- An expansion of schemes like the MGNREGA for harvesting and composting of parali. An integrated regenerative rural development model of **narwa** (rivulet regeneration), **garuwa** (cattle conservation), **ghuruwa** (composting) and **baari** (kitchen garden) through a participatory process using MGNREGA.
- The most efficient technology to **counter stubble burning** at the moment is **Turbo Happy Seeder (THS)**.  
It not only cuts and uproots the stubble but can also drill wheat seeds in the soil that have just been cleared up. The straw is simultaneously thrown over the sown seeds to form a mulch cover.
- Establishing **Farm Machinery Banks** for custom hiring of in-situ crop residue management machinery.  
Co-operative societies of farmers, **self-help groups**, registered farmers societies/farmers groups, private entrepreneurs for establishment of farm machinery banks or custom hiring centres.
- **Financial incentives** to small and marginal farmers to engage in the management of the residue of their non-basmati variety rice crop in Punjab, Haryana and Uttar Pradesh.
- However, in the longer time span, **shifting cropping pattern** away from paddy to maize, cotton, fruits or vegetables in Punjab, Haryana and UP.

## ***Drishti Inputs***

Identify the issues related to stubble burning. Mention how an effective policy planning can convert crisis of stubble burning into opportunity.