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Punjab's Water Law Linked to Air Pollution in Delhi

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Why in News

The severe **air pollution crisis in NCR-Delhi region** is found to be **related to the timing of stubble burnings** in the neighbouring states of **Punjab, Haryana**.

Farmers in these states have been setting fire to their fields after harvesting of paddy since the 1980s. But “**the timing**” of stubble burning has significantly **changed** after **Punjab Preservation of Subsoil Water Act, 2009 (PPSW)** came into effect.

Practice Prior to the PPSW Act, 2009

- The farmers in Punjab were **sowing paddy nurseries from mid-to-late April and transplanting the seedlings from mid-May to late-May**.
 - For the **first three weeks** after transplanting, the plants have to be **irrigated almost daily** to ensure **water-logged conditions** to **prevent weed growth**.
 - But nursery sowing and transplanting, during **peak summer**, led to **massive groundwater depletion**.
- As a result, the paddy, including **155-day varieties such as Pusa-44**, got harvested by **early October** — and the **burning of the stubble** used to get over around **mid-October**.

The **stubble burning period** and the **onset of winter in Northern India** had a considerable **time gap** which **avoided the air pollution crisis** in the area.

Implementation of PPSW Act, 2009

- The act was brought in **to prevent the groundwater crisis** during summer.
- The Act barred any nursery sowing and transplanting of paddy before May 15 and June 15, respectively.
- This ensured that a significant part of the **crop's water requirement is met from monsoon rains** and also, lesser water loss due to evaporation after mid-June.

- Late transplanting 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.

Positives of PPSW Act, 2009

The delayed paddy transplantation has been helping to save 1,000 billion liters.

It is **equal** to the **total water consumption of Ludhiana**, an industrial town, for **two years**.

Impact of PPSW Act, 2009

- Implementation of the PPSW Act (2009) made the time period of stubble burning coincident **with the onset of winter** in Northern India.
- Also, **wind movement remains very slow** and **moisture levels** in the lower atmosphere remain high during this period.
- It creates a layer, due to which all the **particulate matter and gases** from the **burnt stubble**, as well as vehicles and industries, get **accumulated**, instead of moving away.
- At this time of the year, **winds in Punjab generally blow from the northwest to the southeast**.
 - **Haryana and Delhi** are to **the south and southeast of Punjab**.
 - Also, these **northwesterly winds** are **calm with a speed of less than 2 kmph** which results in '**air locking**' at many places.

Thus, the PPSW Act (2009) may have helped arrest the rapid decline in the groundwater table and aquifers, but it has contributed to the unprecedented deterioration in **Air Quality Index (AQI)** in the National Capital Region

Source: IE