**Syllabus subtopic:** Conservation, environmental pollution and degradation, environmental impact assessment.

**News:** The Punjab Preservation of Subsoil Water Act, 2009 is being blamed for contributing to the air pollution over Delhi and surrounding areas.

**Prelims focus:** Key features and significance of the act.

**Mains focus:** Role in increasing air pollution in the capital and surrounding.

**Reason**

The law led to the sowing and transplantation of the summer paddy crop to be delayed by about a fortnight, and moved the harvesting season to end-October and early November — a time when the moist air and largely inactive wind systems cause particulate matter and gases from burning paddy stubble to hang in the atmosphere. This air is carried by northwesterly winds towards Delhi, which lies to the southeast of Punjab.

**About The Punjab Preservation of Subsoil Water Act, 2009**

The law aimed at conserving groundwater by mandatorily delaying the transplanting of paddy to beyond June 10, when the most severe phase of evapotranspiration (transfer of water from land to the atmosphere through evaporation from the soil and plant transpiration) is over. Farmers were forbidden from sowing paddy before May 10, and transplanting it before June 10.

**Why was the law enacted?**

There has been serious concern over the drastic fall in the water table in Punjab and the cultivation of paddy leads to over-exploitation of underground aquifers, as a very large number of tubewells (more than 14 lakh in 2015-16) running on free power pump out virtually endless amounts of water.

It was believed that early transplanting of rice (before mid-June) resulted in unsustainable withdrawals of groundwater with the monsoon still far, temperatures very high, and the evapotranspiration rate (ETR) at its peak. And hence this law was put in place.

**Law’s link with air pollution**

- Farmers’ organisations say late sowing and transplanting delays the harvesting as
Well (it is end-October by the time operations end), and they are left with a very small window to prepare their fields for the next (wheat) crop.

- In this situation, **setting the stubble ablaze is a quick-fix solution.** By this time, temperatures have started to fall, and a combination of atmospheric and meteorological conditions ensure that the smoke cannot disperse easily.
- A part of the smoke from **the farm fires is carried by westerly winds towards the NCR and further down the Indo-Gangetic plain.**

**Does the Act really help conserve groundwater?**

A study has reported a robust effect of the 2009 Act on reducing groundwater depletion. Between 2008-09 and 2012-13, the average annual rate of decline of groundwater in Punjab was 0.7 metres, less than the 0.9 m during the period 2000-01 to 2008-09, the study found.

**Punjab’s underground water situation currently**

According to a report in May 2019 by the Central Ground Water Board under the Ministry of Jal Shakti, 105 out of 138 blocks are in the dark zone. At current rates of depletion, good quality water in the first aquifer up to a depth of 100 m shall be exhausted in 10 years, and the entire subsurface water resource could be finished in the next 22 years.