

Debate: Have the paddy planting laws fulfilled their purpose?

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In a few months, much of North India will be engulfed in a thick blanket of smog due to a combination of factors, one of them being indiscriminate stubble burning. Although stubble burning has come down considerably in the last few years, the problem persists.

Some experts say the limited window between paddy harvest and wheat sowing makes farmers burn their stubble. And one big reason for this limited window is the twin Acts in Punjab and Haryana that prohibit sowing of paddy ahead of a designated time.

The governments of Punjab and Haryana, to arrest falling groundwater levels, brought out almost identical Acts in 2009, moving paddy sowing towards the onset of the monsoon. Non-compliance with the two Acts — the Punjab Preservation of Subsoil Water Act 2009 (PPSWA) and the Haryana Preservation of Subsoil Water Act 2009 (HPSWA) — attracts penalty in the form of destruction of nursery or transplanted crop at the offending farmer's expense, or disconnection of electricity supply, or cash payment, or all of the three.

PPSWA prohibits raising paddy nursery before May 10 and its transplantation not before June 10. The corresponding dates in HPSWA are May 15 and June 15.

Business Standard asks Pratap Singh Birtchal, ICAR national professor, National Institute of Agricultural Economics and Policy Research (NAEP), and Bharat Sharma, scientist emeritus (water resources), International Water Management Institute (IWMI) whether the Acts have fulfilled their purpose.

The debate becomes relevant in the light of a recent paper by ICAR's NAEP, which says over-extraction of groundwater has continued in spite of the two Acts, leading to a steep decline in its level by more than 0.5 metre a year. The rate of over-extraction is three times more in Punjab compared to Haryana.



Pratap Singh Birtchal, ICAR national professor, National Institute of Agricultural Economics and Policy Research



Bharat Sharma, scientist emeritus (water resources), International Water Management Institute

How effective do you think the twin acts of Punjab and Haryana have been?

BIRTCHAL: Initially for two to three years, they helped arrest the decline in the groundwater level, but later, despite these laws being in force, over-extraction of groundwater continued unabated, leading to a further decline in its level by more than 4 metres in both states. The current stage of groundwater development in Punjab is 163 per cent and in Haryana 136 per cent.

SHARMA: The research by IWMI, and empirical evidence by the state of Punjab in 2009, showed that the total savings in groundwater withdrawal in the state was about 2,136 million cubic metre (7.2 per cent of total Ground Water draft), with 31 million total pumping hours' savings. The Punjab State Electricity Board reported electricity savings of 276 million units for the agriculture sector in 2009. The savings were comparable in Haryana. However, the exact figures are not available. The paddy area in Haryana is much less than in Punjab.

What are the reasons why you think the Acts have been effective or ineffective?

BIRTCHAL: Several factors are responsible for the perverse outcome of the Acts. One of the biggest factors has

been the free or highly subsidised electric power for irrigation in both states, even before the enactment of these Acts. Farmers feared lower paddy yield if they were to fully comply with the realignment of paddy sowing towards the onset of the monsoon, which means adoption of the short-duration paddy varieties.

There is a behavioural response to this. Even though farmers switched over to cultivation of short-duration varieties of paddy, they allocated more area to it, which means more withdrawal of groundwater. Further, the assured procurement of paddy at a government-determined minimum support price (MSP), which acts as an insurance against market and price risks, is also partially responsible for the failure of the Acts.

SHARMA: The Acts have been effective due to the strict implementation by the state agriculture and revenue departments. Enforcement of penalty clauses acted as a deterrent. Use of remote sensing confirmed the delayed sowing of paddy around June 10. Strangely enough, farmers realised the merits and are conforming to the delayed sowing of paddy.

They have been rendered somewhat ineffective due to state-sponsored free or highly subsidised electric power supply, high and assured MSP, and

extensive paddy cultivation in the two states.

Do you think the time has come to revisit these laws?

BIRTCHAL: In principle, these legislations could have been quite useful in serving their intended purposes if implemented properly, and if accompanied by rationalisation and re-purposing of input subsidies, especially on electric power. Also, there is a need to rejuvenate the canal irrigation system.

SHARMA: It is now more than 15 years since the Acts were formulated and sufficient lessons have been learnt towards the gains from the Acts, the constraints hindering the realisation of the gains, and other environmental factors. But the Acts still stand as positive state actions and have received wide publicity and interest.

Paddy is one of the most water-consuming crops. It is also in high demand. How can the crop be grown sustainably without harming nature?

BIRTCHAL: There are several technological and agronomic options to sustainably grow paddy. Crop diversification is the best option to improve sustainability of natural resources. However, crop planning based on resource-endowments, that is land and water, is a necessary but not sufficient condition, as there is hardly any crop, except fruits and vegetables, in both states that can generate as much profit as paddy.

SHARMA: The long-term sustainable solution is that at least 10 per cent of the paddy area in the hotspot districts of Punjab and Haryana should transition to other high-value but low-water-consuming crops of fruits and vegetables, pulses and oilseeds, milk production, and fodder crops. The second best solutions include adoption of Direct Seeded Rice, Alternate Wet and Dry Method of Irrigation, use of Laser Land Levelling, Underground Water Pipes for Water Conveyance, Cultivation of short duration rice cultivars, use of non-conventional waters, and Underground Taming of Floods for Irrigation.



Late paddy sowing is blamed as being one of the reasons for stubble burning, as it leaves a very small window before the next wheat crop is sown. In such a scenario, how can the problem of stubble burning be addressed? Has the option of penalising farmers worked?

BIRTCHAL: Penalising farmers for burning paddy straw is not a socially and politically desirable option. There are other options. The governments have been providing subsidised machinery for paddy straw management. The Indian Agricultural Research Institute has developed a bio-decomposer technology, which decomposes straw faster. Paddy straw can be used for electricity generation. The governments have also been promoting short-duration varieties of paddy and wheat; the latter is the most

widely grown crop after paddy.

SHARMA: This is a serious environmental question and stubble burning is part of the problem, not the root cause of the problem. Stubble management and disposal needs financial and technical resources, which either the farmers do not want to incur or they are not readily available. Burning of paddy straw is not solely due to a shorter window, but because of the ease and low cost of clearing the fields. Small surveys with farmers showed that changing the provisions of the Act will not stop the burning of stubble. Any tinkering with the Acts may be considered in all its pros and cons, and after stakeholder consultations.

Views are personal