

## CUTTING THROUGH THE SMOG

Relevant for: Environment & Disaster Management | Topic: Environmental Pollution - Air, Water, Soil & E-waste

Incidents of stubble burning — following the harvest of paddy crop in Punjab and Haryana — cannot be averted by imposing fines, or giving notice or giving farmers capital subsidy. Instead, the issue requires long-term vision and strategic policy interventions.

Air pollution is a worry especially in north India. Stubble burning is said to be a key factor behind the formation of a dense cover of smog in this part of India though its contribution is less than 20%. Farmers are held responsible for the crisis but what is at fault are the flawed and short-sighted policies of the Central and State governments.

In the 1960s, wheat-paddy crop rotation was encouraged in Punjab and Haryana to make India self-sufficient in foodgrain production. Large public investments in irrigation and adoption of high yielding varieties under the Green Revolution helped achieve the goal and make the nation food secure. However, the negative externalities in terms of land degradation, adverse soil health due to overuse of fertilizers and pesticides, and plummeting water tables have surfaced.

The share of paddy (rice) in the gross cropped area in Punjab has increased from 6.8% in 1966-67 to almost 36.4 % in recent years, while it has increased from 4.97% to 20% in Haryana. The increase has undisputedly been at the cost of the area under maize, cotton, oilseeds and sugarcane. The policy of minimum support price for crops, in tandem with their assured procurement and input subsidy, have left farmers with no option but to follow this rotation. Besides, Punjab enacted a water conservation law in 2009 which mandates paddy sowing within a notified period (some time in June instead of the earlier practice in May). A shorter period of sowing days prohibits transplantation before a notified date, which in turn limits the window available for harvesting paddy to between 15 and 20 days. As a result, farmers who are pressed for time to sow wheat and maintain crop yield find stubble burning to be an easy and low-cost solution.

One possibility to curtail the practice is to ensure that the government encourages crop diversification towards less water-intensive crops by extending price incentives and better marketing facilities. In some districts, farmers have started growing kinnow fruit but are often dissuaded due to high price volatility and the absence of a market. The policy of a 'price deficiency system' — as initiated in Haryana and Madhya Pradesh — should be adopted to strengthen the production and marketing of alternative crops. Another option is to replicate the Telangana model of providing farmers an investment support of 8,000 per acre each year and withdraw price-based support.

Punjab faces another serious problem: labour shortage. In the Agricultural Census 2011, average land-holding size has increased from 2.89 hectares in 1970-71 to 3.77 hectares in 2010-11 — higher than the national average of 1.5 hectares. Paucity of labour for various farm operations is substituted by machines for which the government extends financial support.

Farmers have already made investments in seed drill machines for sowing wheat after paddy harvest. Increasing pressure by the government on farmers to purchase the 'happy seeder' to abate stubble burning adds to the cost incurred by farmers. Even if the machine is available at a subsidised rate of nearly 1 lakh, it would remain idle the whole year and become a liability in terms of maintenance. It is not a viable option for small and marginal farmers who hardly earn 60,000 in a year. Imposing a fine for burning straw is again unreasonable. The fine imposed per hectare is much lower than the cost incurred on a 'happy seeder'.

A feasible remedy could lie in the setting up of custom hiring centres or inviting companies to make investments for rental purposes. If the state provides an app-based support system, to rent out tractors and farm implements and earn additional income — there are examples of this in Nigeria and also in Rajasthan, Madhya Pradesh, Gujarat, Uttar Pradesh and Bihar — it would be akin to the 'Uberisation of agriculture'. It would avoid stubble burning and at the same time make farming more mechanised, cost effective and a source of employment.

Another far-sighted approach could be in effective use of paddy straw. Unlike wheat residue, which is used as fodder, paddy straw is non-palatable to animals as it has high silica content. Farmers, who have already been sensitised to refrain from burning residue, should be given options such as biomass generation. Now, hardly 20% of straw is managed through biomass power plants, paper and cardboard mills. The government should use geospatial techniques to identify areas where stubble burning is severe and encourage installation of biomass plants at such locations. This will not only reduce transportation costs for the firm or village entrepreneurs but also help the government achieve its target of generating 227GW based on renewable energy sources by 2022. Farmers can also be incentivised to sell the residual for additional income. The residual has uses, such as in paper, cardboard and packing material making and also hydroseeding (defiberised rice straw can be used in hydroseeding for erosion control).

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The government's maternity benefit programme must be implemented better and comply with the Food Security Act

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