

STUBBLE BURNING IS NOT THE ONLY CULPRIT

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

Air pollution in Delhi has always been a topic of discussion during Deepavali. Almost everyone gets into the “act”, the Supreme Court of India and top echelons of the Government not excluded, while children are forced to breathe polluted air. Airwaves are filled with immediate “band-aid” type solutions and television experts finally come around to just one issue — stubble burning by farmers in Punjab. Therefore, the solution also gets simplified; prosecute those who burn stubble (the stick) give them happy seeders by the thousands (the carrot). All is well till the next Deepavali.

If the problem was that simple, it would have been solved long ago. The intention is not to justify stubble burning, but to point out that it is not the only culprit (though it is an important one) and other factors need to be attended to as well. The simplification of the narrative to stubble burning and the argument that all that smoke that comes out of Punjab’s paddy fields lands in the National Capital Region (NCR), particularly in the capital city of Delhi, may not stand scientific scrutiny considering the fact that wind speeds, dispersal rates and settling down of particles are governed by laws of science.

Recently, there was a reference in a television programme about satellite observations on stubble burning from 2002-17. Reportedly, there has been an increase of 3% in aerosol loading attributable to crop residue burning during October and November every year. However, no data was presented on the impact of burning of biomass in urban Delhi, coal fired ovens (tandoors) and coal-based industries, coal-based power plants in the outskirts of Delhi, the exponential increase in sport utility vehicles, or SUVs, in the NCR and so forth.

As for stubble burning, we need to stop this practice for sure. But how do we do it? Farmers do it out of economic compulsion. The “city centric” argument is that Punjab now produces 25% more rice than what it did 15 years ago, which is good for the country, but bad for Delhi. Others argue that the Punjab Preservation of Sub-soil Water Act 2009 is the main culprit. There are many who believe that a generous distribution of direct seeders (or “Happy Seeders” as they are called) should make the difference.

Essentially, we come to three options: Reduce paddy area/production, allow farmers to plant/transplant paddy before June and distribute “happy seeders”. This will, according to many, address the problem of air pollution in Delhi during October and November.

Let us start with reduction in production of paddy. Punjab was never a traditional rice cultivator. It took up rice cultivation in response to the national policy of food self-sufficiency. They achieved the highest productivity in the country and contributed maximum among all States to the central pool of rice procurement. In the process, the area went up from 2.6 million hectares in 2001 to 3 million hectares in 2017; production went up from 9 million tonnes to 12.5 million tonnes. Punjab dug deeper to get groundwater and caused long-term damage to itself.

Attempts at diversification did not take off because of the difference in net farm returns and market risks. A rice farmer earns about 57,000 per hectare whereas maize in a maize-wheat combination would set them back by about 15,000-17,000. The farmer will not bear this burden. An estimate by agricultural economist Ashok Gulati suggests 12,000 per hectare (keeping power saving in mind) as an acceptable compensation. If the idea is to reduce area of common paddy by half a million hectares, resulting in a reduction of output of 2 million tonnes, the Central government has to step in and support this change for the next five years. This half-a-million

hectare should be in water-stressed blocks and can be encouraged to shift to maize or any other crop. Another one lakh hectare can shift to basmati production.

Coming to the more controversial argument about the Punjab Preservation of Sub-soil Water Act 2009, there exist strong arguments to prevent over exploitation of groundwater especially if farmers cultivate rice in April/May. Though strong evidence is necessary to establish improvement in groundwater levels, there is some evidence to show that the rate of deterioration has slowed down.

If farmers are allowed to go back to the pre-2009 regime, what will happen to the groundwater in Punjab is anyone's guess. The elephant in the room, however, is free power to tube wells. Can this amount of about 6,000 crore be shifted to a direct benefit transfer as has been suggested by policy experts? Is there a political will? Are the large farmers the real opposition here? This shift could be a game changer. A bigger game changer will be a shift to cash transfer in lieu of grains in the public distribution system by the Centre.

The "happy seeder" is the most talked about solution. Direct seeders do help but have limitations. First, the seeder has to operate within about 4-5 days of the harvest. The effectiveness depends on the moisture (not too moist, not too dry) present in the soil at the time of seeding. This requires a good understanding of soil conditions. The agronomic practices need to change particularly with regard to application of fertilizer and irrigation. These machines may be used only during the 15-day window in a whole year. They will remain idle for the remaining 350 days. My reckoning is that Punjab will need about 20,000 of these machines if basmati areas (about 6 lakh ha) and rice-potato areas are excluded from the calculation.

The problem is complex and needs a solution. But the solution should take into consideration the economic condition of farmers, the scientific options available and the willingness of the Central government to change policy and fund a major part of the expenditure. Blaming the farmers alone will not do; citizens need to put in their bit too. We owe it to the children.

T. Nanda Kumar is a former Food and Agriculture Secretary, Government of India, and a visiting fellow at the Indian Council for Research on International Economic Relations. The views expressed are personal

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