

Agriculture Is Injurious to Health

ATUL DEULGAONKAR, ANJALI JOSHI

Marathwada in Maharashtra is a case study of environmental disaster in the wake of climate change with Vidarbha too facing similar conditions.

Atul Deulgaonkar (atuldeulgaonkar@gmail.com) is an independent journalist and author and Joint Secretary of the Forum of Environmental Journalists in India. Anjali Joshi (anju1959@yahoo.com) writes on environmental and social issues.

Farmers in India could be forgiven for assuming that bureaucrats, political parties and their representatives want them to quit agriculture. In fact, without actually announcing that agriculture in any form is injurious to health and only death can end the agony of the disease, these sections do their best to communicate this message subtly.

A large number of farmers suffer due to their insistence on carrying on farming and find solace, it seems, only by committing suicide. Between 1995 and 2014, 2,96,438 people across India (60,365 from Maharashtra itself) took to this path. Farmers from Maharashtra's

drought-prone Marathwada region have been committing suicide since 2010 but the numbers have gone up from 2014 onwards. In 2015 nearly 1,200 farmers killed themselves and in the first 90 days of 2016, 273 had ended their lives in a bid to get relief from severe distress.

The examples of this are depressingly widespread. After taking over the farm left behind by his father Dadarao Shinde's suicide in October 2010, in Beed District, Sandeep was driven to take his own life that same year due to untimely rains. In the same district, Sambhaji Shinde committed suicide due to agricultural distress in 2010 and his brother Sugreev who started running the farm also died by his own hand in 2014. Mohini Bhise from Latur District was keen on qualifying as an auxiliary nurse midwife (ANM) but realised that her father Pandurang could not afford the massive donation

and fee. Her wedding would have cost him another whopping amount. When a despairing Mohini heard her parents talking about selling their only asset, their land, she hanged herself on 20 January this year. She left behind a note stating her despair that her parents would have to suffer in order to give a dowry for her marriage.

Unless one visits the house of a marginal dry land farmer, one cannot fathom the despair and distress therein. It is a world where a mother kills herself when her daughter asks for another roti and there is none to give her.

Vijay Jawandhia who has studied the lives of farmers says,

Suicide is just the tip of the iceberg of agricultural crisis. The cost of cultivation is accelerating at a tremendous pace. Farm labourers are paid minimum wages, government employees get wage hikes based on dearness allowance; prices of industrial products increase with the increase in costs of production, only agricultural produce does not get its due price. Farmers are forced to decide between selling their land or simply killing themselves. There is no other way to get out of the vicious cycle they find themselves in.

The Intergovernmental Panel on Climate Change (IPCC) in its fifth assessment report (2015) says,

The big risks and overall effects of global warming are far more immediate and local than scientists once thought. It is not just about melting ice, threatened animals and plants. It is about the human problems of hunger, disease, drought, flooding, refugees and war, becoming worse.

According to Michel Jarraud, chairperson of the World Meteorological Organization, by 2050 South Asia would suffer the awful repercussions of climate change on the availability of food, water and electricity. Production of major crops like rice, wheat, millet, maize and sugar cane would drop substantially and occurrence of epidemics will be repeated.

Trapped amidst frequent droughts due to climate change and inaction of the government, Marathwada region is facing extreme weather events more frequently since the El Nino in 2009. Depleting forestland, severe droughts, dry borewells, and starving people and animals have affected all the eight districts of the region which is facing acute water shortage,

stagnant economic activity, and consistent migration. The normal rainfall of 780 mm during monsoons has dropped to less than 260 mm. More than 70% of the kharif crops have failed, leaving farmers with nothing and as some of them point out, not even with enough money for poison to kill themselves. Marathwada has seen more than 250 farmer suicides every year since the drought of 2012. In the past seven to eight years, untimely rain and hailstorms during February or March have become a regular phenomenon, affecting the winter harvest. Even when the total rainfall remains within the average, the number of rainy days has decreased from 75 to about 37 days (Physical Research Laboratory, Ahmedabad Report, 2011). Untimely showers lasting for 48 hours have also taken a toll. This change has been disastrous for the agriculture leaving the 20 million people of this region in perpetual need of water. Since 2014 and 2015 experienced 40% deficient rain, thousands of Marathwada farmers lost nearly four to five crops one after the other. The villages, houses, individuals and social life in this region have become dismal and depressing.

Lack of Political Will

Against this background, the pertinent questions are: why do we lack the political will to draw up a systematic action plan for agriculture? Where are the measures for climate change mitigation and adaptation, including setting up research institutions?

Farmers cannot predict the possibilities of rain, neither can they count on predictions by the meteorological department. The ordinary farmer cannot fall back on the so-called experts or forecasters to point him in the correct direction and provide supporting information and guidance.

Why do the rain forecasts by the Indian Meteorological Department (IMD) rarely prove to be accurate? It is the variable factors and unpredictable nature of weather that is blamed for this state of affairs. Jagadish Shukla, head of the Climate Dynamics Department in George Mason University points out, "We have proved that in spite of its chaotic nature, it is

possible to improve on our predictability of weather and climate." Shukla is critical of the statistical model used by the IMD which is based on the statistical information of organisations in Europe and America. He has consistently suggested that thorough research on the weather patterns in the Indian subcontinent and preparation of a customised model that considers climate dynamics is needed, in the absence of which short-term predictions for very small regions are unreliable.

In 2010 Germany claimed the first successful use of laser to summon clouds from air both in the lab and in the skies over Berlin (<https://www.newscientist.com/article/dn18848-laser-creates-clouds-over-germany/>). Now cloud seeding is considered a mainstream tool for rain participation. Cloud seeding chemicals can be strewn by aircraft or by devices located on ground generators or through canisters fired from anti-aircraft guns or rockets. For the release by aircraft, silver iodide flares are ignited and dispersed as the aircraft flies through a cloud. When released by devices on the ground, the fine particles are carried downwind and upwards by air currents. Cloud seeding to augment natural rainfall by 15% to 20% is being practised in 47 countries and China, Australia, Thailand, Canada, France, Argentina, Kansas, and many states in the US conduct routine cloud seeding operations to save crops and properties at a nominal cost. China with about 70,000 technicians leads the world in cloud seeding and for Chinese meteorologists cloud seeding is a handy tool for disaster management. They are so alert that when they suspect hail formation in the sky, cloud seeding is carried out to suppress the hails and protect the interests of the farmers (<http://this-muststop.com/owning%20the%20weather.htm>). Cloud seeding can thus be used as a weapon to fight against natural disasters along with the assurance of required precipitation.

In 2004, a number of eminent Indian scientists had met in Bengaluru's National Aerospace Laboratories to discuss the development of an integrated cloud modification technology. The consensus was that effective cloud modification technology has enormous implications on a number of fronts: societal, strategic and

economic. The chairperson at the meeting, A P J Abdul Kalam, suggested that it should be tried for the next five years. However, nothing much came out of this meeting.

Special Agricultural Zone

The International Center for Agricultural Research in the Dry Areas (ICARDA) has developed a heat resistant wheat variety that sustains itself even in 50° Celsius temperatures. This variety has enabled Sudan, Ethiopia and Nigeria to produce between 500 and 1,000 quintals more wheat per hectare. Mahmoud Solh, ICARDA's director general says,

Public research Institutions must come out with genetically modified straight varieties that withstand climate change. Poor farmers should not be at the mercy of corporations who care for their own profit. They should be able to use their own seeds saved from previous year.

Jennifer Thompson, professor emeritus of microbiology at the University of Cape Town, has developed a virus (Maize Streak Virus) and drought-resistant genetically modified maize. She points out that national research institutions must develop genetically modified crops to mitigate climate change since the corporate companies will not take any interest in the genetic modification of main crops.

Neither Plan Nor Design

Neither the central nor the state governments have any plan or design in place for India's agriculture sector regarding climate change mitigation and adaptation. We have not yet developed new varieties of main crops that could withstand water stress though India ranks second on the Climate Change Vulnerability Index.

The recent consensus among all political parties to implement the Swaminathan Commission Report on Agriculture (pending for 10 years) will help farmers procure a minimum support price for agricultural produce that ensures 50% profit over the cost of production. The United Progressive Alliance (UPA) government had formed the first National Commission on Agriculture but neglected to implement the report for eight years. Prime Minister Narendra Modi had assured

its implementation during his 2014 election campaign but has kept silent about it since. Senior ministers in the Modi cabinet say that the growth rate should cross 8.5% before action can be taken on the report. However, when it comes to hiking the salaries of all government employees according to the seventh pay commission, the government moves quickly. This is the reward for the organised middle class and punishment for the unorganised class that works so hard to feed the country.

The prices of urea have come down in the international market but in India they continue to remain the same (₹300 per bag containing 50 kg, at the time of writing). It clearly shows that the Modi government has reduced the fertiliser subsidy, says Jawandhia. The central government has increased the prices of potash and phosphate fertilisers which now (April 2016) cost between ₹70 to ₹110 per bag of 50 kg. The Modi government has increased minimum support price of agricultural produce by a mere 4% to 5% whereas the previous government had raised it then by nearly 15%. As a result, the farmers find that their income has not improved substantially but cultivation costs have escalated, he says. What is worse is that farmers across Marathwada feel isolated and without support.

In 2015 in many parts of region, farmers could not sow at all. The compensation given by the state government for total loss of crop was ₹6,800 per hectare. The cost of cultivation for any crop is in the range of ₹15,000 to ₹25,000. This is a cruel joke and the situation at present has worsened so much that they cannot prepare themselves for the next sowing which should ideally start within 35 to 50 days.

Knowing that farmers are not credit-worthy in the eyes of the nationalised banks and are forced to approach money-lenders who charge interest rates between 48% and 100% per annum, the Swaminathan report recommends loans to farmers at 4% simple interest along with a crop insurance and health insurance schemes. It also suggests setting up state commissions with the help of farmers' representatives and centres in

disaster-prone areas to help them. Swaminathan also envisioned a special agricultural zone (in place of the special economic zone) that would cater to the needs of agriculture and farmers.

Alarming Signals

The worsening climate across the world is crippling a number of economies and failing agriculture has led to large-scale migration. Water depletion and drought are becoming familiar conditions in many countries.

The Marathwada region exhibits similar alarming signals. The consecutive episodes of droughts and acute water shortage are causing displacement of human beings, capital, and entrepreneurial talent from the region. It faces the prospect of having a population dominated by the old as the young flee in search of livelihood. It does not have substantial mineral reserves since the forest cover is barely 1.5%. Marathwada is also completely dependent on Western Maharashtra for water and considering the tremendous ground water depletion due to overuse, it is literally drying up.

It is obvious that all this has affected the region's economic development. Irrespective of caste and class, the youth in the region feel marginalised and many of them find solace in caste-based organisations. The young are angry and despairing while the unskilled and semi-skilled labourers are jobless. Extortion has become an occupation.

Marathwada is a textbook representation of environmental disaster in the wake of climate change. The other region in the state, Vidarbha, also seems to be increasingly facing conditions like those in Marathwada. Death and devastation in this area are frightening and demand immediate action on a war footing. Climate change adaptation offers an opportunity for innovative and creative approaches that can boost the stagnant rural economy and offer jobs in newer areas for the despairing youth. In the absence of sincere and planned action on our part, Marathwada is most likely to be ravaged by droughts even more frequently and face socio-economic devastation on a gigantic scale.