



Science, Big Business and Farming in India

By Devinder Sharma

The author, an agricultural scientist and award-winning journalist explores the myths, the lies and the flawed policies responsible for the reality of hunger in India today

Former Agriculture Minister, late C. Subramaniam had told me a story, which I think you all must know. During 1965-66, there came a time when food was left for only seven days, and there obviously was a panic all around. He called for a meeting of all concerned in the ministries. They sat down. "Now what is the answer?" the minister asked. He then suggested to his officials to search or to identify the ship carrying food grain and sailing closest to India. The ship was identified and then an SOS was sent to the American President saying that if you don't divert the food to us – India would die, hungry people would die waiting for food.

Now you have to know such scenarios if you want to understand the politics of food, how it can ensure food security or how it governs the politics that we are talking about today. Anyway, we all emerged out of the food insecurity trap after Green Revolution came in, and we became self sufficient and so on. But then over the years our productivity started stabilising, and subsequently the productivity started falling and our agriculture scientists were left gasping for the right answers. They still don't know what exactly is the answer.

Being an agricultural scientist, I am myself pained to see the way agricultural scientists have begin to operate nowadays. They don't go to the fields anymore. They are like the politicians. Just like the politicians have lost touch with the masses, agricultural scientists have lost touch with the farming communities. So both of them have lots in common.



It's much easier to work in a biotechnology lab, in air-conditioned comfort and then to go and toil hard in the crop fields. I am not saying this is true for every scientist, but in general terms, scientists now are not willing to go to the field. That is why they are keen to ride piggy back, they want to get onto the lucrative bandwagon and justify their scientific existence by saying: "Look, biotechnology is the answer." Let us see now, whether hunger has something to do with productivity or not and then understand where biotechnology fits in.

In India, as you all know, we have over 60 million tonnes of surplus food grain in 2001, much of which is being eaten by rodents or is rotting. On the other hand we have some 320 million people who go to bed hungry every night and look what the government proposes. Over the last few years – the government has formulated a very interesting

policy decision, which must be an eye opener for all of us. I have been talking about it for quite some time now and there are two things that I would like to share with you.

First of all, we know, India has the largest population of malnourished people in the world. Therefore we are obliged to first address the problem of malnourishment. What better way of addressing malnourishment than to allow an American company called Rice-X to collaborate with Monsanto and set up a manufacturing plant in India, which will be converting rice bran into human nutritious food. The company says it has the answer for India's growing malnutrition. By converting rice bran into human nutritious food the company feels that it will take care of malnutrition. You will now have small pellets being sold in the market and if you eat that your malnutrition problem is solved. Fortunately or unfortunately, what we don't realise is that traditionally rice bran has been used as a cattle feed. We are therefore converting cattle feed into human nutritious food.

And now look at the other side, look at the irony. We have 60 million tonnes of food grains, which is nutritious human food. And we are desperately trying to export human food so much so that we are lowering the export prices to that below the poverty line. When we export food grains, it primarily goes as cattle feed in the western countries. So, we are exporting our human nutritious food for the cattle of the western countries, while converting our cattle feed into human nutritious food. What a wonderful policy!

And now look at the international scientific community. Cassava is one of most important food crops of Africa. Some 300-plus million people survive on cassava as a root crop. Scientists had refrained from working on cassava all these years to improve its productivity. The reason was obvious: people who are going to get those improved varieties have no money to buy the improved seeds. So they never worked on improving cassava. In the last few years, scientists learnt that cassava is an important component of the diet in pigs. And as you all know, pig rearing in America is becoming a huge industry. Multinationals have now pumped in millions and millions of dollars to research on cassava. Let it be very clear. When it comes to food security, even animals take precedence over humans!!

In this game of politics of food, we must be very clear that the focus of research is not on human food security but on what I call the 'profit security' of corporates, and if you get something in the bargain, it's your good luck. Basically the aim of industry is to ensure how their profits can go on increasing. The biotechnology industry that we are talking about has gone into private hands. We all know that. It's completely privatised, and if there is some public institute involved, they are also either collaborating with them or doing a project for the industry.

The Department of Biotechnology of the Government of India is a classical example of that. It caters to the commercial interests of the multinational companies and never into what this country's small farmers need. In fact, only two days back, I happened to be at Chennai at the M.S. Swaminathan Research Foundation participating in a conference aimed at the forthcoming 'World Food Summit Plus Five.'

Interestingly, Dr Manju Sharma, secretary, Department of Biotechnology, who was also present, mentioned a figure, which I think I need to share with you. She said, Bt cotton can increase the production of cotton by 35 to 80 per cent. I think this would embarrass even Monsanto, because Monsanto has never claimed that Bt cotton would increase the production by 80 per cent. If you have people like Manju Sharma saying it, I think Monsanto doesn't have to worry about public relations, and that is what scientific community has really come down to. They are more loyal than the King. That is probably the reason why the MNCs are reducing their expenditure on public relations!!

In the context of food and hunger, where are we headed? There is also this issue of hidden hunger that invariably crops up. If we were to provide the 60 million tonnes of surplus food grain that is available with us, I am sure you would agree that there would be no malnutrition left. If you were to address the problem of hunger, you also address the problem of hidden hunger. Unfortunately, we are not willing to address the problem of hunger and instead go on talking about what will happen in the year 2020.

We are now being told that in India, for instance, in the year 2020 there would be a food deficit. Therefore, you need to raise your food production. And therefore you need biotechnology. But look at what has happened in the last one or two years. Farmers are committing suicide for producing more. Farmers are committing suicide because there are no buyers for what they are producing, and we are being told we have to work for the year 2020.

Interestingly in Andhra Pradesh, Chief Minister Chandrababu Naidu has told his farming community --- "Please, don't produce more rice. I can't buy it." Is it not a fact? In Punjab, farmers are being told "Please don't produce wheat and rice – we can't buy it. We have no place to stock those food grains." And still, scientists are telling us – "No, you need to produce more." Politicians are telling us "No, please don't produce more." So something is definitely wrong somewhere. Either the scientists don't know the ground realities or the politicians are far removed from the happenings in the countryside.

There is something terribly wrong with our understanding of agriculture and farming. Thank God, when the elections approach, politicians start learning the truth. Chandrababu Naidu will also become a sane person at that time. But this will not happen to scientists as they don't have to face an election. Now they are also telling us that we need to diversify crop production. We should diversify from wheat and rice. We should go into other crops. It certainly is very interesting.

Look at Punjab. Punjab is the food bowl of the country. Punjab's farmers have been told of the need to diversify, by a high-level committee, which brought out that report on diversification of agriculture. Everybody jumped to conclusions and started saying that Punjab farmers need to diversify. But, no one told them what they need to grow. Punjab farmers, like farmers elsewhere, are not foolish. As you all know, farmers are the best scientists, best economists and the best judge of things and so they took a decision not to diversify. They haven't diversified all these years. When they diversify, they diversify into crops like potato and what happens in potato? One year when they go into production of potato, there is a glut, an unimaginable glut and everything collapses.

Then the government comes out with this wonderful safety net. It says that we need to store these potatoes; therefore, let's get money for storing potatoes. I remember in Punjab, 15 years back, the Government of Punjab gave Rs 5 crore to construct cold storages. For the next two years, there were no potatoes coming to the cold storages. Farmers had refused to grow potatoes after the initial crash in prices. And then what happened, those cold storages were turned by enterprising owners into cinema halls. It doesn't stop here.

Look at what happened at Uttar Pradesh, Haryana and also in Karnataka in 2000-2001. The Planning Commission, the Ministry of Agriculture and all went on saying that we need more cold storages. The Finance Minister made an allocation in the annual Budget saying that we need to construct godowns in rural areas. A lot of money is therefore being pumped into rural godowns. Go into Uttar Pradesh and you will see the condition of rural godowns, farmers have brought their produce to be stored in godowns, these cold storages. But they are refusing to take them out because what will do they do to

potatoes after taking them out of the cold storages. There is no market for these potatoes. So the godown owners are serving legal notices that either you take out your potato from here or I throw it away.

Somehow our policy thinking is always tuned half-heartedly to things which are not really important for this country. Potato is one crop. Then, we are told, 'look farmers do not know how to add value to these potatoes.' How do you add value? 'Potato chips or potato fingers' – that's the common suggestion that you hear. No scientist, no economist will go beyond these two choices for value addition. But look at the realities. There is no market for potato chips. All of us know, many potato chips companies have closed down shop and only one company emerges strong – and you all know -- 'Lehar Pepsi' and the other one remaining in the market is 'Uncle Chips.'

The other product as part of the value addition is to make potato fingers. With the WTO coming into force, all the major food joints like Wimpy's, and Nirulas, are importing potato fingers. When you go to McDonalds and order finger chips, remember that these are all imported. We have allowed the potato fingers imported in a frozen state and we are asking farmers to produce potatoes to cater to the market. It doesn't end here.

If you look at all the crops one by one, and the kind of ideas we give to diversify, these somehow reflect our lopsided thinking or blind thinking which actually creates more problems for the farmers. And that's what worries me, because the way we are pushing in biotech, the farmer is definitely going to be facing more problems in the years to come. We are not going to solve his problem, we are in fact going to create more problems for him. It is very well known the green revolution bypassed the small and marginal farmers.

It is a fact. The gene revolution that we are talking about will bypass the hungry and hunger. Because if you look at the entire paradigm, there is no thrust, no focus on eradicating hunger. In fact, the way the biotech industry is geared up, for the simple reason that nowhere in the world is biotechnology being tailored to suit the interests of developing countries. It is actually meant for the developed countries. Then, just for the sake of market, it is being pushed on to us.

Let me give you another example. Bovine Growth Hormone (BGH) is a genetically engineered hormone given to cows as an injection that actually increases the production of milk by 15 to 20 per cent. There is a controversy in America about its use, and of course, Europe had put a ban on it for some years. So what did the companies do? They focussed on countries like ours because you know we are a big market. They don't realise, and of course we also didn't realise, that we are number one today in milk production in the world. Why do we need to raise milk production to still higher levels? Nobody knew it.

But then, we were told, we need to raise milk production, because our poor suffer from malnutrition, so they can drink more milk. The crux of matter is that if they had money to buy that milk, there would have been no surplus that we talk about in milk. But then we forget that we are saying no, no, to the need to increase milk production. We then went in for testing the hormone in our cattle, and allowed the premier institute at Karnal – the National Dairy Research Institute -- to research the efficacy of bovine growth hormone. This hormone is a one billion dollar industry globally. Four multinationals have pumped in much money and spent many years to research this product. And finally, the National Dairy Research Institute at Karnal, was asked to conduct research on this hormone for a period of three months.



BGH causes mastitis in cattle (among other problems)

Do you know what the result of the research was? Bovine growth hormone is not good for cows but is good for buffaloes. That surprised even Monsanto because Monsanto had never worked on buffaloes and suddenly they get this approval in India. For use on buffaloes, which actually meant that it was a back-door entry for the controversial bovine growth hormone. This is how crucial decisions by the Department of Biotechnology or the scientific community are being taken, and I think it is our duty to really bring that out, or oppose the way decisions one being taken and that too in the name of science.

All that we will be told is: look we had a scientific committee, we had the testing and now you must accept it. This is what is happening in the case of Bt cotton. You all know that Bt cotton is a genetically modified cotton with a gene from a bacteria. The question we're asked very often is why we are debating its utility when farmers desperately need Bt cotton. I said, if you look at ten years back, some of you who had been working on cotton would recall, cotton had a problem with one insect called Heliothis or what you call American Bollworm. It's a pest, a national pest, it does the greatest damage to crops. It's a pest, which has over the years become resistant to all kinds of pesticides.

When you spray the chemicals for controlling this pest, which actually appears much later, the chemicals kill other insects, insects which come earlier than bollworm. When you spray and spray indiscriminately, you first kill the natural enemies of this pest. And, therefore, over the years, this pest has developed resistance. In fact, ten years back or so, when the Government of India accepted the introduction of synthetic pyrethroids in this country, I was opposed to its decision. I had said that it's a dangerous chemical, we should not accept synthetic pyrethroids for controlling cotton pests. At that time, the scientific community said "No, No, No, we must accept it."

Anyway, the chemical came and within a few years the insect developed resistance to it. Then the scientific community started saying that we should have legal laws, which would demarcate the area in which these pesticide should not be sprayed, whether it is in Andhra Pradesh, or in Punjab and so on, because this insect resistance had already resulted in a lot of farmers committing suicide. But have we learnt any lessons from these debacles? No, we haven't yet learnt any lessons. Nor are we keen to.

Now we are very keen to discard that pesticide treadmill or the circle of poison and we want to jump onto another circle, which forms a biological treadmill in this case. We are being told 'look at how wonderful this Bt toxin can be to control the insect, and that would take care of your insecticides, and the environment would be much safer.' Is that the real answer for the cotton farmers? Let us see. Cotton, as you all know, is not a staple food. It's not a primary food crop. It's a cash crop.



Pic © Greenpeace

I give you another example of what happened and what should be forming our thrust area as far as addressing this problem of pesticides is concerned. In 1986-87, the Indonesian rice crop was destroyed by an insect called the 'brown plant hopper.' This insect devastated the crop and there was no chemical control available. Among one of the good decisions that President Suharto took was that he sent an SOS to the scientific community saying please come and help us, because there is no control for brown plant hopper on rice and rice is the staple food of Indonesia.

Scientists came, scientists came from FAO as well as the International Rice Research Institute. They sat with the President, they advised the President that you need to ban pesticides on rice. Somehow it got into the President's head. He, using his Presidential decree, banned 57 pesticides on rice in one go. The entire world was up in arms, the entire chemical industry was up in arms, saying look your people will die of hunger, starvation and so on, because rice is your staple food and if you don't spray your crops will fail, there will be famine and hunger. But somehow President Suharto stood his ground and look what happened? Two years later, rice production went up by 18 per cent. The consumption of pesticide came down by 65 per cent. The environment became much cleaner and the cost of production also went down drastically. Now, that is the model we need to adopt for cotton.

If India had the political courage to ban pesticides on cotton, I can tell you cotton production will be out of all the circle of poison that we talk about. But it requires scientific and political courage and that kind of courage is not there, because as you all know, both the scientists and politicians are working for the industry nowadays. If that happens, the chemical industry would collapse for the simple reason that cotton consumes 55 per cent of the total pesticides used in the country.

But come to think of it, are we looking into the interests of chemical industry or to the interests of farming community? If you were to ban the pesticide what will happen is that the predators, the natural enemies of the bollworm insect would proliferate and they would take care of the pest. According to studies done by ICRISAT, not far away from here, there are 27 natural enemies of bollworm found in the same cotton field, but these first get killed when you spray chemicals and therefore bollworms survive.

So the answer is not to take the biological route, the answer is not to create another biological complication and then ten years down the line, more and more farmers would be committing suicide. So what is the answer? The scientific community has to search within, has to go in for introspection, how long can they go around fooling the poor people, poor farmers? As if this is not enough, we are also being told by the scientists, and this you would have heard earlier, that farmers know what is good and what is bad for them. So let them use Bt cotton. If it is not good, they will reject it.

I completely disagree. In this era of information age, in this age of media supremacy, the hype that we create through TV and other mediums helps in defining markets, it becomes very difficult to find out what is good and what is bad. I am sure we all get confused when we look at the ads for toothpaste, soaps and so on. Can we really decide on which one is good, which one is bad? All of them claim to be good. But then you must think, if you get confused and carried away how can the poor farmer know what is good or what is bad for him? I will give you an example.



When Warangal district in Andhra Pradesh recorded its first suicide by a cotton grower, it was subsequently found out that 90 per cent of the chemicals that were being sprayed in the district were spurious and obviously these fake and contaminated chemicals were being bought by farmers. They didn't know all these years that what they were buying was spurious. And then ultimately ended up getting more into debt and committing suicide.

So to say that 'I am a farmer therefore, I know what is good for me' also is completely incorrect, and many of those farmers who speak on behalf of Monsanto would always be saying that, and thereby end up doing the same damage. In such situations, when we are told by scientists and farmers leaders about providing choices to farmers, we should know that these scientists and leaders have a vested interest, they speak either on behalf of the chemical or the biotechnology industry, as the case may be.

Now coming back to the problem of malnutrition. There is this wonderful product that is being talked about all over -- Vitamin A rice, some call it 'golden rice.' Everybody is being told this and, in fact, scientists are jumping on their seats as if they have found a magic bullet to solve the malady of malnutrition.

Interestingly, first of all, we don't know who decided that we need to look into Vitamin A deficiency! Why didn't we think of Vitamin B Complex deficiency? It's true that Vitamin A deficiency affects 62 million people the world over, but it is also a fact that Vitamin B deficiency affects 300 million people. Who decided that we should opt for research on Vitamin A and not Vitamin B? Nobody knows. And we know, some people, say ten people sitting in a board room decide what is good for the society and society has to chant the mantra. Let me explain.

I am sure many of Andhra Pradesh's agricultural lands are also like Orissa on the eastern coast. Kalahandi is an area which is notoriously or infamous for its hunger and starvation. It is in western Orissa. Everytime you hear of Kalahandi, you hear of hunger and starvation. This is actually a belt, which extends to Palamu in Bihar and this belt has a population of about 20 million. These are 20 million people, who by and large suffer from hunger as you all know. But what is not known is that Kalahandi is the biggest contributor of surplus rice to the central kitty or to the Food Corporation of India. People who produce that rice, who labour to produce that rice cannot buy that rice and therefore, they die of hunger and starvation.

If they were able to buy that rice or if they got that rice to eat, I am sure you will agree they would not suffer from what is called as hidden hunger or malnutrition or to put it straight, Vitamin A deficiency. But then we want to divert attention from the real problems. We are saying: "No, no, no, forget about normal food, the poor and hungry need to get what is called 'novel' food, 'functional' food" and so on." Biotechnologists tell us that they are providing the poor with a choice of various 'novel' foods. I am sure, you will agree that if we were to give the poor people a choice, they would like to have food. Give them food and much of the problems that we are talking about would be resolved. But we don't want to give them food. And if they can't afford to buy rice, please tell me how can they buy Vitamin A rice?

It's a question, which has not been addressed, it is a question that is very conveniently bypassed and it will continue to be bypassed, because of the commerce, the industrial interests that drive these kind of technologies, further and further driving away the poor and hungry from their basic right – the right to food. We are increasingly getting into a paradigm, which actually takes us away from the ground realities and therefore in the years to come, you will see more and more people succumbing to hunger in India.

Biotechnology, which is being pushed in the name of hunger will actually be adding onto hunger. It's therefore important for all of us to question, it's very important for all of us to raise our voice. Otherwise, we will do exactly what the late Mrs. Indira Gandhi, India's former Prime Minister, used to do.

Mrs. Indira Gandhi, as you all know remained in power for about 18 years, a remarkable leader, the world respects her and so on. But let me share with you a classic quality of Mrs. Indira Gandhi and I find the same principles and thinking being adopted by the chemical or the industrial or the scientific community. There's a parallel here.

Mrs. Gandhi had the political astuteness to address problems, she was known for it. If there was terrorism in the fareastern State of Assam, her way of addressing the problem was to 'let it linger on' and when it goes out of hand, she will create another problem in northwestern Punjab and when the Punjab problem goes out of hand, people will tend to forget about the problem the existed in Assam. And when the Punjab problem goes out of hand, she will flame another crisis in down south Tamil Nadu. So, that means the nation's attention gets diverted to Tami Nadu and you forget about Punjab. What a remarkable way of solving problems by diverting attention. And this is exactly what the scientific community is doing.

It's doing that. The problem today is of hunger, and they are not keen to address the problem of hunger. They are telling us we should be worried about hidden hunger. What a clever way of bypassing the real problem that is confronting us today. And then they also know that we have mountains of surplus food in India. Because they don't want to tackle or confront the hunger problem, or they don't want us to get out of the hunger trap, they are saying you should look at the hunger that is going to crop up in the year 2020. Somehow we are not worried about the surplus that we have right now. If we were to take care of the surplus right now, I can assure you that the hunger that we are talking about in the year 2020 will not be there.

Let's make a beginning by first taking care of or at worst taking this monumental task upon ourselves, we must ensure that the surplus 60 million tonnes that we have got has to be distributed among the poor. And unless we do that, I don't think we have the right to say that we should be worried about the hunger that is going to crop up in the year 2020. Let's be sure, more and more people are dying in India by producing more, rather than producing less, and that is something that we need to be very, very clear about.

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