
Gauhar Raza: Prof. Swaminathan, let’s begin with your childhood. Your family was very intensely involved in the Swadeshi movement and temple entry movement. It was a Gandhian family.

MS Swaminathan: Well, my early education was in an ordinary neighbourhood school. My father was a very strong nationalist like most people in those days. He was a strong follower of Gandhi. I remember Mahatma Gandhi staying in our house in Kumbakonam. My mother was also a Gandhian and insisted that we spin a charkha at least one hour every day to make our clothes. In eight years of my early childhood, every day more or less it was mandatory. But it gave us some lessons because the charkha represented self-reliance. So, swadeshi and self-reliance became a part of my conviction.

My father was a very successful medical doctor and a very popular one because he never used to ask for money. In the town of Kumbakonam mosquitoes were a major problem leading to incidents of Filariasis and Elephantiasis. My father believed that mosquitoes were not god-given, they were man-made. Therefore, just praying to god alone won’t help and action should be taken to eradicate them. So, he stood for...
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GR: Dr. Swaminathan, your mother wanted you to be a doctor and your father was your role model but you started doing zoology but suddenly shifted to botany. How did that transition come about?

MS Swaminathan: Well, I was studying at the Maharajas College in Trivandrum because my father’s elder brother was then the chief secretary to the Govt. of Travancore and since my father was no more he said, “Why don’t you come and study here?” At that time in 1942, Gandhi gave the ‘Quit India’ call and there was a very clear feeling that India was going to become independent. We had a small students’ club where we used to discuss issues and one day the topic was ‘How can we help independent India?’ Unfortunately, at the same time the great Bengal famine happened in 1942-43 and I could see in newspaper front page reports how 3 million children, women and men had died out of hunger. So, when it was my turn to talk on the topic of helping independent India, I spontaneously said that I would like to see that there is no hunger and therefore I wanted to shift from medical to agricultural side. That was a big shock to my mother when suddenly I said that I will go to the agriculture college in Coimbatore and not to the medical college in Madras. I got admission in both but I joined the agriculture college at Coimbatore. And then I decided to enter a field that could make the maximum impact – genetics and plant breeding.

GR: Before that you were asked to apply for the Indian Administrative Service and Indian Police Service.

MS Swaminathan: That was when I went to Delhi to further improve my qualification in the field of genetics and plant breeding because I thought that the best field for making the largest contribution is to have new varieties, particularly suited for small and marginal farmers. When I went to Delhi to join the Indian Agricultural Research Institute for my post-graduate work, I met one of the officers in Krishi Bhawan, who was a collector in my town and he knew my family. He said, “Why have you come into agriculture. It has no future. Sit for the competitive examination and join the civil service.” So he filled up the form and I was selected for the Indian Police Service. I still have the orders from the home ministry of the Govt. of India.

Then I applied for a fellowship to go to Holland because Holland is a land of small farms and very good farmers. They asked me to work on potatoes. That was because during World War II. So, I wrote to the Home Ministry that I had got a UNESCO fellowship to go to Holland so I can’t take up the IPS. I also sent a copy of the UNESCO fellowship, which was for one year. After one year, Dr. Mohan Sinha, who was our first ambassador in The Hague, rang me up and said that you went for fellowship for one year and that one year is over. If you are still interested, we are posting you in Assam…That was very nice of them. Anyway, I wrote to them that I was very sorry for any misunderstanding.
**IN CONVERSATION**

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Then I went to Cambridge. I did my PhD on potatoes and in Cambridge I published a few papers that attracted international attention and I was invited by the University of Wisconsin in United States to set up a potato research centre at Sturgeon Bay in Lake Michigan.

GR: But all through you had this at the back of your mind that you will come back to India after getting trained there and serve the country.

MS Swaminathan: I was very clear on that. In fact, when I was in Wisconsin I was offered a very good position as an associate professor. The president invited me for breakfast and I told him, “Sir my intention of moving out of my country was to equip myself to serve my country. So the question of settling abroad doesn’t arise at all.” He was very moved and said, “You have my blessings.” So I came back to India in 1954.

GR: Was it because you wanted to help the poor in the country because of the 1942 experience or was it because you wanted to build a new India?

MS Swaminathan: India is an agricultural country. At that time nearly 75% of the people were in agriculture and an agricultural country depending upon other countries for food was a shameful situation to be in. So my whole ambition was to ensure food self-sufficiency in the country and secondly, the food should be available at affordable cost to everyone. We should not be dependent upon imported food because even now I am fond of saying that the future belongs to nations with grains and not with guns. Guns you can purchase but grains you cannot purchase. We had to go the PL480 way to get grains.

GR: The scientific and political leadership in the country were working in unison and that brought out the results.

MS Swaminathan: That is correct because unless there is synergy between technology and public policy this cannot be achieved. Technology can show the way but only public policy can ensure whether we will realize the potential or not. In the sixties, the country was desperately in need of food. We were having a very bad time depending upon PL480 wheat because that obviously needed some compromises in fiscal management and external relations management. Lal Bahadur Shastriji who coined the slogan ‘Jai Jawan Jai Kisan’ was very clear about it. I have had the good fortune of meeting him and talking to him several times. He was an agriculturist at heart.

GR: But despite all the support from the political leadership in the country, you faced immense problems in inviting Dr. Norman Borlaug, who was a big figure, to India.

MS Swaminathan: We were lucky at that time to have Lal Bahadur Shastri on the one hand and C. Subramaniam who was a great believer in science and one of the great political leaders of the country. I wanted to go into dwarf varieties of wheat and they were available with Dr. Norman Borlaug of Mexico. They were also available in the United States but the US varieties were not suitable for us. They are called winter wheat. So I sent a proposal, I think in late 1959 or early 60s, to send an invitation to Dr. Borlaug to come and also to bring his material but it took nearly two-and-a-half years to materialise because the file said why is this man to be invited, what can we learn from him, he is from Mexico and so on.

By the time Ms Indira Gandhi came in 1966, we were importing 10 million tonnes of foodgrains. Once when Dr. Vikram Sarabhai and I called on her for a Krishi Darshan programme on Doordarshan, Ms Gandhi looked at me and said, “Swaminathan, how soon can we build a reserve of 10 million tonnes?” I was taken aback. I said, “Madam, if we do everything right, in another five years we should build-up a 10 million tonne reserve.” By 1971, it had happened. Ms Gandhi released a special stamp called ‘Wheat Revolution’ in 1968.

So the political leadership, the administrative leadership like Mr. B Sivaraman, an outstanding ICS officer who drew his lessons from the field and not from the files. There are many who go only by files. He drew his policy from the field. Every morning he used to come and we both went round the field and he enquired what is new and so on. So we had an unusual combination, what I call a symphony, no jarring sound. There were scientists, administrators, political
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leaders – all of them came together and that is how the revolution could take place. In four years’ time our farmers produced more wheat than had been produced in the previous 4000 years and that is why it is called a revolution. From Mohenjodaro to 1966 and 1966-1970, production was more in four years than in the previous 4000 years.

GR: It was a different country. Dr. Swaminathan, India experienced that revolution and you became a household name everywhere, not only in metropolitan towns and research papers but also in villages because the farmers were thankful to you. Now what is the future?

MS Swaminathan: Well, we have a challenge again because the population has grown, climate change is there and other kinds of problems are going to come. That’s why internal vigilance is the price of stable agriculture. I coined the term ‘Evergreen Revolution’ because many environmentalists criticised the ‘Green Revolution’ from two angles. One is excessive use of pesticides, excessive drawing of groundwater and salination of soil and so on...

GR: But even in 1968 you had warned the country that excessive use of fertilizers and excessive drawing of sub-soil water would lead to problems.

MS Swaminathan: At my Science Congress address in January 1968 in Varanasi I did warn the people because in some cases green revolution was becoming a greed revolution. In my speech I had said, “We should be very cautious, must have integrated pest management, integrated nutrients applied, everything in moderation, no hype. And that’s something called the ‘Evergreen Revolution’.”

GR: How do you think we should move forward now when the situation in the country is such that it is going to take another turning point probably.

MS Swaminathan: What people have to realize is that inputs are needed for any output. Plants also require some nutrients to give output but the inputs have to be given in a way that does not cause long-term harm. That is why I coined the term ‘Evergreen Revolution’, which I defined as increase in productivity in perpetuity without causing any harm. This can be done now. We have the technologies. We can produce more and more without causing harm to the earth. You can partly give back to the earth what you have taken out. Organic farming is very popular and it can be practised provided you have access to a large number of animals, cow dung or cakes and so on. This particular centre for example is designed only for the purpose of mainstream environmental conservation with technology development and dissemination. Science shows the way and you can either use or abuse science.

GR: Some people argue that now Indian society and economy have to get into the transformative mode, from agrarian society to industrialized society. Do you agree with that?

MS Swaminathan: I don’t agree because agrarian society in our country is in the majority. You can do without anything but not food. Now you can go two ways: One is to have highly industrialized agriculture like what developed countries have done. But our country already has 1.2 billion population which is likely to be 1.5 billion with huge joblessness. Job-led growth is the characteristic of agriculture. We cannot afford but to take the job-led growth pathway. But the younger generation is not going to be attracted to agriculture unless there is some intellectual satisfaction in addition to income. We have now to concentrate on how to attract and retain the youth in farming. The National Commission for Farmers (NCF) had given a lot of thought to it and suggested methods by which the young people can be attracted – by modern technology on the one hand and remunerative marketing on the other. I had recommended that the procurement price must be C2, that is, all cost of production plus 50% margin. Some people think it is too much for a farmer but a farmer is also an Indian. He has to have not only food, but as is said man does not live with food alone, he needs other things as well.

GR: Your work as a scientist, as a social reformer, as a person who transformed India has been recognized and this room, where we are sitting, holds more than 250 shields. Which award has excited you the most?

MS Swaminathan: One occasion I still remember in 1968 was when Indira Gandhi flagged the ‘Green Revolution’; there was a very big gathering of farmers. They had invited her to come and open a seed cooperative. Suddenly, the Chairman of the seed cooperative asked Indira Gandhi to put a medal on me saying that this is the man responsible for it. Now, I think that is worth than any another award coming from the clan of farmers. Last time in Amritsar a farmer recalled what I did 50 years ago. It is a social encouragement and satisfaction that you have done something that is very useful for your fellow human beings.

GR: Would you like to give a message to the younger generation?

MS Swaminathan: I want to remind them of what Jawaharlal Nehru once said, “The future belongs to science and those who make friendship with science.” You may not be a scientist but you can get away from superstitions and get away from all the wrong things that are happening in our society. Make friendship with science. I think it is a beautiful world, the future belongs to science and so we must use modern technology in reforming. Modern technology is transformational technology. It will transform the way in which you communicate and it will transform the way in which you live.

(This interview was telecast on Rajya Sabha TV as part of a series called “Eureka”. The interview is available at http://scm.nic.in/videos/304/dr-m-s-swaminathan,-father-of-india’s-green-revolution.)

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