

In Conversation with Prof. M.S. Swaminathan

Monkombu Sambasivan Swaminathan, popularly known as Prof. M.S. Swaminathan, father of the Green Revolution, greeted us with a smile when we met him at his office on a bright, sunny morning of 11 December, 2019. He fondly recollects his association with Yojana, when Sharada Prasad was at the helm of affairs as Yojana Editor in the early 60s. “Those years, there were very few issues of Yojana, where my article would not have appeared”, Prof. Swaminathan says with pride. At the age of 94, the founder of M.S. Swaminathan Research Foundation (MSSRF), though tied to his wheelchair, but his mind is still sharp and is equally passionate about promoting sustainable agriculture, improving the standard of living of ordinary farmer, and offering suggestions on how to prepare ourselves to combat climate change.

Excerpts from Prof. Swaminathan’s interview by Sanjay Ghosh, Yojana, Chennai.

The Prime Minister in his address at the United Nations Climate Change Summit has mentioned that behavioural change is the need of the hour to combat climate change. How do we bring about this change?

Behavioural change comes at three levels. One, from home, where the role of the mother is very important. Secondly, in schools and colleges. Thirdly the society, starting from political leaders, unless they have a commitment to ensure that we do not interfere with climate, we will have difficulty. Therefore, the behavioural changes have to be brought about at three levels. At home level as usual, the school and college level where education has an important role to play and finally your life and your attitude towards public life. In our country, unfortunately, we do not have yet well-organised programme of public education.

There is an effort. [The] Prime minister particularly tries his best to spread the news about the dangers of climate change. But, I would say, we do not yet have it in our schools,

colleges, and homes. In our own homes we still switch on air conditioners even when it is not needed. Now you should know every unit of energy we depend on is non-renewable energy, then we are in difficulty. So how do you promote renewable energy instead of non-renewable energy? In other words, there is a need for energy management at household levels, at institutional levels and in cities and towns. So, it requires a number of steps to create more public awareness at schools and colleges. I strongly believe every Panchayat should have a climate management society. We should try to educate the Panchayat members about the need to combat climate change.



The Government has rolled out several policies and programmes to tackle climate change. What more needs to be done?

We are very unique in one sense. We are a democratic society, secular democracy—a vibrant democracy at three levels—at the grassroot level, Panchayat institutions and at the State-level legislative committees and so on. In terms of life and public education at National level we also have large number of academies, scientific institutions, and a number of universities. At political level, starting from Gram Sabha to Parliament. And that is why I would say public education should become everybody’s business. Not only a few, but we should all feel that the climate does not distinguish the rich and the poor man. All are equal before the climate. And only if you are rich you try to manage the climate in your own room by using energy. I think the time has come for us in our country, to come together to tackle climate change. We have started MSSRF climate research in the year 1989. Over thirty years we have taken a number of steps on this front.

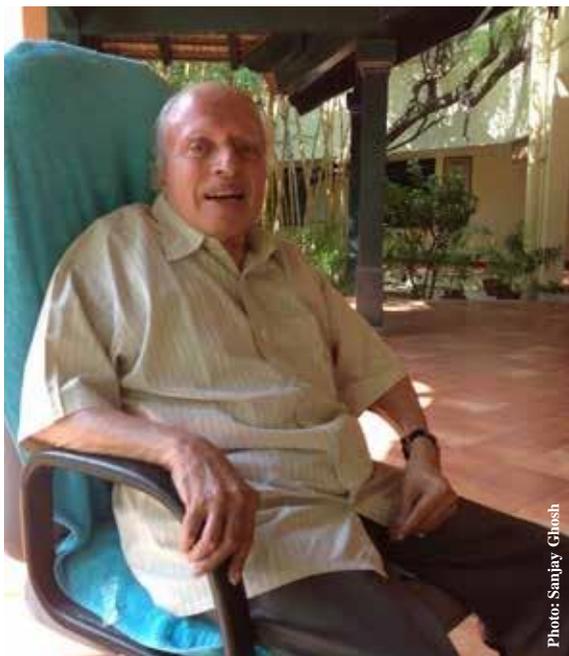


Photo: Sanjay Ghosh

So, I think, we are making a transition now and with the Government, the present Government in particular is giving a lot of emphasis on climate issues. In the recent climate change conference [COP, Madrid], I hope it will come to an agreement with all countries. It is not India, it is not Eurasia, it is not USA but every citizen of this world should have a feeling that it is my planet. He should feel that this is the only one I have and therefore I should try to protect it

pace which is needed largely because energy is important for everything. This room is now lit; it needs energy for that. For cooking we need energy. Therefore, the pace can be accelerated provided we find alternatives to every one of the high carbon activity. For example, the smokeless chulha—it may be a small item. But that's important. It will make a contribution. We should try to make more and more such contributions and we should be aware of the importance of climate change. In the next ten years nothing much is going to happen. But, next twenty years it will happen. By that time your children will be grown up and therefore we should not become complacent.

In the beginning there was very great reluctance. But things are changing. I think we are in the mode of transition from a high carbon society to a low carbon society. We should try to make use of this transition as far as possible, for the good of the country.

Is this transitional phase taking longer time?

That's true. That is what I said earlier. Theoretically, our people are aware of the climate problem. In fact, we were among the first to have had IMD, Indian Meteorological Department, for climate measurement because we are largely an agricultural country. Due to the whole photosynthesis, agriculture is main source of renewable energy. We know in South India, for example, they worship the Sun and the green plant during the Pongal time. The idea of the Sun being worshipped is the fact that the green plants are absorbing the sunlight and converting it into energy. These are all advance stage of knowledge. When I ask people what is the meaning of the Pongal? Why do they choose sugarcane as a variety? People don't know that. Sugarcane is the most efficient absorber of solar energy.

from climate change or other forms of changes.

I think the story is happening though I am not satisfied with the pace. But I am sure with the knowledge of today, there is a growing awareness that climate has tremendous influence upon the future of our lives and planet. It is not happening at the

In the recent months stubble burning has become a major cause for pollution in Delhi. What are the steps that the Government needs to take to tackle it?

When the rice, wheat crop rotation began in Punjab, stubble burning started. I have been a witness to this from the beginning. Generally, rice varieties will grow long. But then

About Prof. M.S. Swaminathan

A plant geneticist by training, Professor Swaminathan's contributions to the agricultural renaissance of India have led to his being widely referred to as the scientific leader of the green revolution movement. He was described by the United Nations Environment Programme as "the Father of Economic Ecology" because of his leadership of the ever-green revolution movement in agriculture. He was the Director of the Indian Agricultural Research Institute (1961-72), Director General of Indian Council of Agricultural Research and Secretary to the Government of India, Department of Agricultural Research and Education (1972-79), Principal Secretary, Ministry of Agriculture (1979-80), Acting Deputy Chairman and later Member (Science and Agriculture), Planning Commission (1980-82) and Director General, International Rice Research Institute, the Philippines (1982-88).

Professor Swaminathan was awarded the Ramon Magsaysay Award for Community Leadership in 1971, the Albert Einstein World Science Award in 1986, the first World Food Prize in 1987, and Volvo, Tyler and UNEP Sasakawa Prize for Environment, the Indira Gandhi Prize for Peace, Disarmament and Development in 2000 and the Franklin D Roosevelt Four Freedoms Medal, the Mahatma Gandhi Prize of UNESCO in 2000 and the Lal Bahadur Sastri National Award (2007). He is the recipient of Padma Shri (1967), Padma Bhushan (1972) and Padma Vibushan (1989).

Source: <https://www.mssrf.org>

the rice has to be harvested. The rice has to be harvested by September/October so that wheat can be planted at the right time. Otherwise wheat yield will go down. Therefore, I have suggested we should have varieties of rice which can be harvested earlier. The longer the duration, they get good yield; but they don't go by the one crop yield. Take two crops together: the rice and wheat rotation.

Somehow, there is a completely new crop rotation now in Punjab. Wherever this rice, wheat rotation is in place we need a Rice Bio Park. Rice Bio Park means every part of the rice—the plant, straw, the hull, the husk, the leaves—all of them should be utilised. They all have uses. My point is unless there is an economic value to them, farmers will not adopt it. In South India, they don't burn straw. In my house we used to have four or five cows, so straw was very important and was used to feed the cows. My mother would not waste even one straw as there was an economic value to it. People look after it. Farmers resort to stubble burning when they don't have any economic value. Stubbles have so much value. I wrote to Government of Rajasthan stating that you are near Punjab, you have lot of cows which are undernourished. So why don't you buy all the stubbles from neighbouring Punjab, giving them money, taking them as feed to the cattle. Unfortunately, these are my views. Good ideas sometimes remain on paper. However, some of my good ideas were adopted very fast. But in this kind of change in cropping system we have to provide technology to the farmers in the fields to convert rice straw into useful end products.

But in this kind of change in cropping system we have to develop a technology. For example, in ancient times in Tamil Nadu, there were five major farming systems, namely, *Kurinji*, *Mullai*, *Marutham*, *Neithal*, *Paalai*. In the hill zone, forest zone, wet zone, the coastal zone and the

desert zone, each required different methods to be adopted for farming. But, I think that knowledge is now forthcoming. You see normally they blame the farmers. They are producers. We have become number one producer of rice in the world. Thailand used to be the number one. Therefore, there is no use in blame game. What is important is here is the rice stubble. It is a good source of calories for animals and also has good vitamins. How can farmer make use the untapped source for additional income? I did my best when I was in the International Rice Institute, Philippines. Mrs. Cory Aquino was the country's President. She came to the foundation, took a round at the rice bio park and she saw a beautiful rice straw paper. She asked, how much it costs? Can you make thousand Christmas cards this year out of rice straw paper? She placed the order.

If I have this rice straw and able to get to say Rs.1000 a ton which is not difficult, then I will not burn it. If you give to neighbouring Rajasthan it becomes the animal feed. It becomes a raw material for making paper, board, it becomes a re-manure method for improving soil fertility. Economic value will make the farmer stop stubble burning. So there are economic uses of stubble, but there is a need for proper dissemination of information on the economic value of stubble.

What would the government do to make the technology to the farmers to stop stubble burning?

Unfortunately, in our country technology transfer is slow. Because we have agriculture as State subject and Government of India is concerned with larger issue, policy and so on. At the village level also there is no extension agencies. I started for this purpose what we call Krishi Vikas Kendras in 1972. I thought something like Krishi Vigyan Kendras. The idea has caught on but nevertheless we

require at least at climate management unit at every Panchayat, the issue of stubble burning can be added as an item in their climate management agenda.

Artificial intelligence and IoT are playing major role in every sector. How can we harness these technologies in agriculture?

Nationally it has to be done at three levels. One is we should have a National Academy which has branches all over the country just as the Indian Science Academy. Secondly, every Panchayat should have a method of doing. Thirdly, Government of India now has the annual meeting of all the Chief Ministers. There we should put up an agenda and say you should take it up as a method.

Today's food system is one of the main drivers of deforestation and bio diversity loss. How do we tackle it?

Well! For food system we require more land. Ideally a country should produce more and more food in less and less land. Try to maximise the productivity pathway than area expansion. Because our average yield is still 1 ton to 1.5 ton per hectare while in countries like Japan it is 5 ton to 6 tons per hectare. We can easily manage it by growing crops at higher productivity level. Also, we must include along with productivity, the quality of the grain, whether it is Basmati or any other variety, which you can export more. If you can export more you can grow more rice. We have largest rice cultivating area in the world— over 40 million hectares. So there is lot of scope to grow more rice, more wheat.

We are essentially an agriculture country. That's what we have to recognise. Modern industry is labour saving. Agriculture is labour absorbing. Jobless growth is not what we want. Job-led growth is needed and agriculture provides the solution. □