

## EVERGREEN REVOLUTION

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The success of the efforts to transform the green revolution into an evergreen or an ever-enduring revolution would depend largely on how well the mooted programmes and schemes are implemented. There are already indications that the focus of agriculture development is gradually shifting from production to income which will essentially need pointed attention to all the links in the agriculture development chain from farm to fork. Technology-driven efficiency and precision would, therefore, have to be the byword for every farm operation to transform green revolution into an evergreen revolution.

The concept of evergreen revolution is, indeed, a sequel to the green revolution of the 1960s which made the country self-sufficient in foodgrains and ended its precarious dependence on food aid and grain imports. Triggered by the use of high-yielding crop varieties which required liberal use of water, fertilisers and plant protection chemicals, this revolution did not prove an unmixed blessing. It also caused some distortions in the cropping pattern and led to some unwarranted ecological ramifications in terms of degradation of natural resources like soil and water and emergence of new kinds of pests, diseases and weeds. However, thanks to its gains outweighing the adverse consequences, a need is being urgently felt to perpetuate it as an everlasting or evergreen revolution but without its harmful upshots. The prime objective of transforming the Green Revolution into an evergreen revolution, therefore, is to expand it to all crops and all regions with minimal unhealthy consequences.

This kind of an environment-friendly and natural

resources-compatible evergreen revolution, covering all gamuts of agriculture and its allied fields and spanning all across the country, is deemed imperative for several other pressing reasons as well. Despite the spectacular advances in the production and per-hectare yields of some crops, the overall productivity of Indian agriculture still remains low compared to that in many other agriculturally advanced countries. Besides, reliance of the Indian agriculture on the monsoon is still quite high. The capability of this sector to withstand the climate change-induced more frequent extreme weather events and natural disasters remains fairly meagre. The scope for expanding cropland has dried up. Landholdings are getting smaller and fragmented, adversely affecting the viability of farming. Agricultural marketing continues to suffer from some formidable disabilities. The marketing network is neither adequate nor efficient to ensure reasonable returns to farmers for their produce. Moreover, rural labour is turning scarce and costly. The combination of all these factors is causing agrarian distress which is reflected



in farmers' suicides and widespread rural unrest that, at times, tends even to turn violent. The green revolution should, therefore, be treated as incomplete unless it becomes an all round and all encompassing evergreen revolution that leads to copious production and rural prosperity. This will require simultaneous action on several fronts and not remain confined to a few commodities.

The noted agricultural scientist, Dr M. S. Swaminathan, who spearheaded the advent of the green revolution, was also the first to sound the note of caution about the adverse, even if inadvertent, fallout of the exhaustive high-yielding crop production technology. He also voiced the need for transforming it into the ecologically-sound and sustainable evergreen revolution. In his presidential address to the Indian Science Congress way back in 1968, Dr Swaminathan warned against practicing exploitative agriculture for short-term gains. He specifically mentioned the harmful consequences of excessive application of chemical fertilisers, pesticides and groundwater irrigation without adequate drainage on the physical and chemical health of the soils. He suggested adherence to scientific principles of soil and plant health management in order to perpetuate the benefits of the enhanced productivity over the longer run. The need, therefore, is to produce more from less land and with less water and less cost-intensive inputs. Such an approach is considered essential to preserve not only the livelihood security of the large agriculture-dependent population, but also ecological security to sustain the green revolution. Dr Swaminathan's recipe for the evergreen revolution, therefore, boils down to perpetuating the increase in land and crop productivity without causing any ecological harm.

The Prime Minister has also been stressing the need for an evergreen revolution instead of using the terms like first green revolution and the second green revolution. He misses no opportunity to elaborate his concept of the evergreen revolution which is focused sharply on producing more from less land and with lower use of water and at reduced overall costs. This may be possible by integrating traditional systems of farming with the modern and scientific ways of agriculture. The use of chemical fertilisers



should be strictly need-based as determined by the requirement of the crop and land fertility. Supplementing the fertilisers with organic manures would help safeguard soils' physical, chemical as well as microbial health. "More crop per drop" is his mantra for the evergreen revolution. He also intends to expand the concept of food security to nutrition security to tackle the menace of malnutrition.

One of our PM's suggestions that merit special consideration relates to creation of agriculture clusters on the pattern of the industrial clusters. Different areas could be identified for growing particular crops suited to the agro-climatic conditions. This would help in streamlining transportation, storage and processing facilities for different crops taking care of their specific needs.

The official think tank, the NITI Aayog, has taken due note of the fact that the farm sector has, by and large, been side-stepped in the process of economic reforms that began in 1991. To address this lapse, the Aayog is working ceaselessly on crafting strategies for raising the farmers income through evergreen revolution. It is regularly coming out with ideas which can help the government to reform and transform agriculture into a sustainable and lucrative business occupation that can contribute to the country's overall economic development. The principal goal of the recipes being suggested by the Aayog from time to time through policy briefs, working papers and other documents is to restore profitability of agriculture as a prerequisite to an evergreen revolution.



The NITI Aayog has, therefore, put forth a multi-pronged agenda for agricultural development. It involves increasing productivity of crops, boosting production of livestock, enhancing input-use efficiency to reduce costs, increasing crop intensity by taking more crops from the same piece of land and with the most economical use of water, judicious use of chemicals, diversification of agriculture towards high-value crops and other ventures, higher price realisation by farmers, creation of additional employment opportunities for cultivators in the non-farm rural sector to supplement the income of farm households, and several other well-chosen reforms-oriented measures. Special emphasis is being laid on taking forward the ongoing agricultural marketing reforms to facilitate and incentivise the private sector investment in setting up rural markets and farm-related logistics infrastructure, including cold chains.

In one of the documents, the NITI Aayog has shortlisted five broad aspects of agriculture that need immediate attention to lift the economic status of millions of farm families. These are also the basic issues which need to be addressed to prepare the ground for an evergreen revolution.

The first point deals with productivity in terms of per hectare output of farm ventures. The present average productivity, despite remarkable spurt since the green revolution, compares poorly with that in many other countries. Besides, there are also large regional variations in the crop yields within the country. Bridging these gaps can go a long way in laying the foundation of the evergreen revolution. This requires development of new cost-effective technology and transferring it to the poor

farmers, besides empowering them financially to put this into practice.

Secondly, most farmers at present do not get remunerative prices for the crops due to the limited reach of the minimum support prices (MSPs) mechanism across the farm community in different parts of the country. The procurement-based market intervention to provide price support has remained confined to a few crops – notably wheat, rice and, occasionally, some other crops – and in a handful of states, though this system has been in operation since the mid-1960s. Elsewhere, the existing agricultural marketing network is highly inadequate, besides being inefficient and non-transparent. It manages to deliver only a small fraction of the final price to the actual producers. The huge gap between the prices received by the growers and those paid by the consumers bears this out. Clearly, a sizable chunk of the money spent by the customers is cornered by the large number of intermediaries in the marketing chain.

Thirdly, the size of the farm holdings of the majority of agricultural households has shrunk to unviable level, nudging farmers to leave farming and look for jobs elsewhere. Over 85 per cent of the farm holdings are smaller than 1.5 hectares in size. Many of them are economically unviable. Since the currently prevalent land leasing systems lack legal sanctity in most states and the land owners find it risky to lease land to others for tilling, large chunks of productive land is being left uncultivated. Amendment of land leasing laws to legalise land leasing without the fear of losing its ownership may, therefore, help in consolidation of land holdings at operational level and to attract fresh investment in farming. This can also bring under cultivation the land belonging to absentee land lords most of which now remains unutilised. More importantly, this can make the tenant cultivators eligible for loans and other benefits of government programmes.

Fourthly, the present measures for relief and loss reimbursement to the farmers at the time of natural disasters are inadequate and suffer from procedural inefficiencies and delays. The risk adaptation measures, too, are poorly executed and have not worked effectively. This situation needs to be rectified.

Fifthly, the agricultural potential of the eastern region is grossly underexploited. This region has

unique agro-climatic conditions for the production of several products. This potential needs to be optimally tapped. This would, of course, require institutional support and investment in technology innovations besides creation of supportive infrastructure of rural connectivity, transportation, storage and marketing.

With these broad imperatives in view, the NITI Aayog has already chalked out detailed action plans for at least three areas which can ultimately form part of the overall plan of action for doubling farmers' income and ushering in an evergreen revolution. For one, it proposes greater involvement of the National Food Security Mission for boosting the production of pulses which, despite being the major protein source for millions of people, have to be imported in large quantities to meet the domestic requirement. This Mission is already operating several schemes, including cluster demonstrations on promotion of improved package of practices for pulses cultivation, to optimise yields. Its recent initiatives for ensuring adequate availability of seeds of high-yielding varieties of pulses can be of great help in raising pulses productivity and production to make the country self-sufficient in this important component of food and nutrition security which is an important objective of the evergreen revolution. To upgrade the quality of seeds, especially of the farmers' self-produced and saved seeds, the government is already running a seed village programme. Under this, financial assistance, by way of 50 to 75 per cent subsidy, is provided on foundation and certified seeds of various crops like pulses, oilseeds and fodders to small and marginal land holders.

In another significant move aimed at ensuring better quality of agricultural products and providing assured marketing at pre-negotiated prices, the NITI Aayog has helped the agriculture ministry to prepare a Model Contract Farming Act for the guidance of the state governments. If the states enact their contract farming laws on the lines of the Centre's Model Act, it can help popularise this system of farming which facilitates direct linkage between the growers and the end-users of different crops. Elimination of middlemen and freedom from routing the output through the regular mandis can substantially reduce the marketing costs, including market levies, for the benefit of both producers and consumers.

On the other hand, the Ministry of Agriculture and Farmers Welfare, too, has prepared a roadmap for ushering in an evergreen revolution and doubling farmers' income by 2022. The new initiatives envisaged under this plan include the use of cutting-edge technology to lift farm productivity, launching a nation-wide programme to tap the advantages of space technology in agriculture, and consolidation of online trading and inter-market transactions to enhance the farmers' price realisation in an efficient and transparent manner. Besides, it also stipulates setting up of seed production and processing units at Panchayat level to make good quality seeds of high-yielding and disease and pest resistant varieties to the farmers. A noteworthy feature of this plan is to utilise about a million hectares of rice fallows, the land left untilled after harvesting rainfed paddy, for producing pulses and oilseeds.

Going a step further, the Agriculture Ministry's plan of action seeks to promote the agriculture's allied activities which can supplement farm incomes and contribute to strengthening food and nutrition security. For this, it intends to promote rearing of indigenous breeds of cows and buffaloes which are strong and sturdy enough to withstand the challenges of climate change, apart from popularising fisheries. Deep sea fishing is sought to be promoted to increase overall production and availability of fish for domestic consumption and exports. The ministry is confident that such initiatives would push the country towards an evergreen revolution besides leading to greater economic well being in rural areas.

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