



Act East Policy of Indian Agriculture

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ABSTRACT

In order to enhance agricultural productivity and livelihoods, we all aim to provide new methods of the cropping, practices and technologies. Sustaining agriculture is important to feed the growing requirements of the overwhelming human population. Indian agriculture, owing to high yielding varieties and animal breeds vis-à-vis good agricultural practices, has moved its production from shortage to surplus over the years. While India has witnessed green revolution, primarily based on the agricultural development in the north-west plains of the country, today, the government is foresighting second green revolution in the eastern India to harness the potentials of fertile soil and also water resources. Thus, the programme of bringing green revolution to the eastern India is based on the successful recommendation of Task Force in 2009 to assess the existing scenario of water resources development, utilization and management of food grains production in the country.

1. Introduction

Sustainable development is now widely accepted as an imperative for continued prosperity in the country (Ayyappan and Arunachalam 2015). It implies making strenuous efforts to meet the needs of a third of the world's population without reducing the options that the next generation will have for meeting its own needs. In agriculture, this has meant safeguarding national food security and improving the quality of life of people who depend on farming for a living, while ensuring that the natural resource base is not further depleted or degraded but is regenerated instead. In the last three decades there have been radical changes in thinking concerning agricultural development, both in free-market and in centrally planned economies in the region. The development models in favour at various times have covered technology transfer, integrated rural development, improved support services, farm systems research and development, price policies and sustainable agriculture (Arunachalam and Golhani 2013).

The post-Green Revolution development strategies have included comprehensive sectoral objectives instead of the simple search for productivity improvements. Strategies have tended to evolve in a piecemeal manner (Conway and Barbier 2013). In the shift from a narrow obsession with yield and productivity, poverty reduction was introduced as a new focus, only to be complemented in quick succession by equity, gender issues, food security and sustainability. What continues to be overlooked is concern for the human condition at the farm-household level and, beyond that, innovation that captures agro-ecological opportunities and that accommodates constraints.

2. Second Green Revolution

At present, the net cropped area in the country is 141 million hectare. Over 38 m ha of land comprising culturable waste and fallows including current fallows is lying unutilized which can be brought under cultivation. To enhance the cropped area, there is need to create irrigation infrastructure and promoting crop intensification programmes. The present cropping intensity in the country is about 133% which means that only 33% of the net cultivable area is sown twice in a year.

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For increasing the gross cropped area, increase in net and gross irrigated area is immensely required. Further, there is also vast scope for introducing water saving devices like drip and sprinkler systems through which the wastage of water especially under arid and semi-arid regions could be minimized. The saved water can be used for increasing coverage under irrigation. The efforts under watershed development programmes should be intensified for increasing water harvesting and higher water use efficiency. These efforts can be coupled with recharging of wells, restoration of tank irrigation, use of raised bed and ridge furrow technologies for *in-situ* moisture conservation.

At present, the use of production inputs particularly seed, fertilizer, plant protection chemicals etc. are suboptimal. There is need for quantum jump in key components of production technology such as increasing area under HYV, hybrid technology, location specific packages of INM, IPM, farm machinery use, water management etc. Most of the farmers in our country are illiterate / less educated, who, many a time, fail to perceive the beneficial impact of improved technologies. Capacity building of farmers and agriculture extension workers need to be promoted vigorously to achieve the goal of Second Green Revolution (Conway and Barbier 2013). The public-private sector integration is required for promotion of irrigated area, water saving devices, research especially on bio-technology, hybrid development, pest management, contract farming for promoting crop diversification, post-harvest processing and management as well as in storage and agri-transport.

3. BGREI Programme (Bringing Green Revolution in Eastern India)

BGREI refers to “Bringing Green Revolution in Eastern India”. This programme was an outcome of recommendations of a Task Force in 2009 to assess the existing scenario of water resources development, utilization and management of food grains production in the country, with a particular reference to North-Western and Eastern India, taking in to consideration the problems being faced due to over-exploitation of water resources in the States like Punjab, Haryana, Western Uttar Pradesh as well as to generate recommendations for developing infrastructure relating to water, power, marketing, storage and rural connectivity in Eastern and North Eastern regions of the country to support sustainable agricultural production. This task force recommended that the higher agricultural production and productivity in western region is mainly because of access to irrigation which is predominantly from ground water sources. Significant proportion of food-grains to the central pool is at the cost

of annual negative balance in the ground water reserves for these states. There is, therefore, need for water conservation and management measures in this region focusing on water saving and productivity enhancement technologies to ensure that it does not adversely affect the overall farm economies and more importantly, its proportion to the food buffer stock (Ayyappan and Arunachalam 2014). As a step towards demand management of water, a gradual shift of rice, sugarcane, aquaculture and other water guzzling crops from North-Western India to Eastern States is required. Towards promoting efficiency in water management, a system of incentivisation can be worked out linking it to providing energy to the farmers based on land holdings and innovative precision farming practices in consultation with the State Governments. Pressurized irrigation/Micro irrigation should become an integral part of minor irrigation structures. To compensate the losses in the area of cultivation and production of rice, sugarcane, aquaculture etc. in North-Western India, irrigation potential can be harnessed to increase agricultural production and productivity in the eastern and north-eastern regions. However, any measure of crop diversification should be done in a phased manner and this should be preceded by ensuring adequate availability of inputs *viz.* high yielding variety seeds, nutrient application, precision farming technology etc. developing adequate infra-structure in water management, post-harvest requirement and rural connectivity, energizing the water management network through a three phase dedicated electrical grid; and strengthening supply chain from farm gate to the market; As more risk prevails in agricultural activities in the Eastern and North-Eastern regions their being vulnerable to natural calamities such as floods, cyclones, drought *etc.* farmers in these states should be protected against such disasters through appropriate safety nets such as effective warning system, insurance coverage, contingent plans, farm advisories, soft loans and credit facilities etc. (Smit and Pilifosova 2003). Since the farm holdings in Eastern India are small, alternate income-generating activities through livestock, aquaculture, tree planting and other income support activities needs to be integrated with the agricultural practices; and as in energy sector there is a need to develop policies for pricing of water in the agriculture sector. This would go a long way in promoting judicious use of this scarce natural resource. With the above recommendations in focus, the BGREI program was launched in the year 2010-11 in seven States of Eastern India namely; Assam, Bihar, Chhattisgarh, Jharkhand, Eastern Uttar Pradesh, Orissa and West Bengal based on strategic action plans developed by these States as a sub-scheme of ‘Rastriya Krishi Vikas Yojana’. The programme has been a success. The eastern region of the country, which has occasionally hit the headlines for starvation deaths, has

turned into a food surplus zone, thanks to BGREI Programme. The Government announced in February 2012 that BGREI resulted in a robust increase in food grain production. Rice production from the region is estimated at 562.6 lakh tonnes, an increase of 19.8% over the last year. The increase across the country is estimated at 7%. Overall food grain production from the region is estimated at 1,032 lakh tonnes, an increase of 11.9% against an all-India increase of 2.2%. This is good news for policymakers, who have been battling stubbornly high food inflation for nearly two years. Food inflation has turned negative after hovering near double-digits while vegetable prices have fallen consistently for the past few months.

The improvement in supply is expected to ease the pressure on the food inflation front. The programme gained momentum in 2011-12 with the focus on rice and wheat and strategic interventions relating to crop production, water harvesting and recycling, asset building and site specific activities needed for improving the agronomy. According to the government, the increased production was due to focused resource allocation and utilization (Ayyappan and Arunachalam 2014). The significant increase in production of food grains in the region not only offset the decline in production in central and peninsular India but also contributed significantly to the highest ever production of food grains. The growth in food grains provides an opportunity to procure and create reserves locally, reducing the pressure on Punjab and Haryana, and cutting costs on transport and other logistics, the government said. It said the focus would now be to consolidate the gains with continued emphasis during the 12th five year plan, which begins in April. Further steps would be taken to improve the infrastructure for procurement and storage of the produce and to ensure a reasonable price for farmers.

4. The Way Forward

In the 70s', India was successful in creating a Green Revolution which gave a boost to the agriculture sector across the country (Hazell 2009). We need to create a similar revolution in the near future as we have already started experiencing stagnation in growth in the agricultural sector. Once again, we need to re-orient ourselves to create another Green Revolution. While the first Green Revolution was to ensure food security as there was severe scarcity of food in the country, the second Green Revolution should aim at creating sustainable livelihood security for the poor and eradication of poverty by generating gainful self-employment. While the first Green Revolution was aimed at undertaking mass production, the

second Green Revolution should be to promote production by the masses. This is in line with the Gandhian philosophy of involving the poor in development for equitable distribution of our prosperity. The second Green Revolution should focus on generation of employment for the small and marginal farmers and the landless, while enhancing agricultural production. As these families mostly own degraded and low fertile lands, deprived of irrigation, the focus should be on efficient use of such lands. As such lands are not suitable for intensive cropping of high yielding food and cash crops, priority should be given to dryland horticulture and agri-silvi pastures. Tree crops have the ability to withstand the vagaries of nature without causing heavy losses. Tree farming can also provide year-round employment while protecting the soil from erosion and runoff of rain water (Arunachalam and Arunachalam 2012). Promotion of tree farming will also enrich soil fertility and increase the water table. Therefore, such programmes can improve the quality of life and protect the environment.

An equally important sector is livestock, which needs good support (Altieri 1995). A majority of the small farmers in India who do not have good land for agriculture, depend on livestock for supplementary income. Therefore, livestock is well distributed among various sections of the community unlike land holdings. Therefore, promotion of mixed farming with various species of livestock can generate employment for small farmers throughout the year. Fortunately, in India we have the largest population of livestock in the world and the demand for livestock produce is increasing steeply. While the present milk production is 98 million tons, the demand in the year 2022 is likely to rise to 180 million tons. This will provide greater opportunity to small farmers to expand their dairy husbandry programme.

Science and technology interventions has already demonstrated the scope for increasing milk production without increasing the livestock population. Probably, dairy husbandry is the only programme where poor families are able to build new assets in the form of crossbred cows, produced every year, each valued at over Rs. 25,000. There are also successful technologies to improve the supply of superior quality feed and fodder, particularly to facilitate small farmers and landless to take up economic milk production. Promotion of forage shrubs and trees, establishment of decentralised complete feed product units, treatment of agricultural by-products to improve the nutritional qualities should be popularised by providing technical support. We also need to re-orient our veterinary health care through mobile services, by establishing a good field network of vets and paravets to provide preventive and

curative health care services to ensure good health, which has a direct impact on the cost of milk production and the quality of milk. Livestock being the major source of organic manure, animal husbandry should be an integral part of agriculture. With the introduction of modern efficient agricultural implements, preferably operated by a single animal, the bullock power can become an ideal farm power for small farmers. Efforts are however enhanced to export the agri-produce across the trans-national boundaries, while also keeping surveillance upon agro-related vulnerabilities such as diseases.

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