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AGRONOMIC STRATEGIES FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT

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Abstract

Since 1991 every sectoral policy are being framed within the system of globalization and liberalization. Structural adjustment has now become an important policy matter of the Government. The implications are now being experienced by various segments of the society. Agriculture, as an important sector in India, is facing various challenges of globalization. Globalization is based on competition and to face competition, we are required to prepare ourselves. Knowledge, investment, incentives, information and internationalization of the farm attitudes are essentially developed for that.

The agriculture sector, after 1980's facing stagnation and the structural changes become not working as medicine but create number of challenges and problems. In India, since mid nineteen the government's priorities have shifted dramatically in favors of the industries. Giving an industrial status to agriculture sector was much in demand due to various reasons. This was rather imperative. In a developed and matured economies the industrial and service sectors contribute a major share in GDP, with agriculture accounting for a relatively lower share. Since decades the agricultural share in GDP is declining. Even during the post liberalization years, the share of agriculture in GDP has declined steadily. The expectations of normal South-West monsoon for 15th consecutive year have raised prospects by increasing an agricultural yield. The share of agriculture and allied activities in the aggregate budgetary expenditure is declined slowly from last two decade. The share of agriculture in total budgetary expenditure has declined from 8.8 percent to 4.9 percent from 1991 to 2007-08 it increase to 7.2 percent for write-off agricultural loan and rural development purposes. In 2011-12 Finance minister insisting the trace on rural and agricultural development but the actual provision made for this is 7.8 percent.

The current paradox in foodgrain from has created complicated situation in the economy. On the one hand we have godowns overflowing with grain, but on the other, larger section of our population still have one of the lower per capita calories consumption, which is because of the lack of purchasing power to buy food at current prices. It is estimated that the consumption of wheat among the lower income groups will increase by over 25 percent, if the price was to be reduced by Rs. 2 per Kg. reflecting the unfulfilled demand.

Another diversifying factor in the agricultural growth trend is that, the share of Kharif declined from 63.6 percent in 1999 to 50.2 percent in 2007-

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08. While that of Rabi crop has increased from 36.4 percent to 49.8 percent. This phenomenon is because of the improvement in the crop productivity.

The agricultural policy of 2004 had indicated the significance of precision farming. The agronomical practices many times work effectively in improving the crop yield rather that the direct effects of mechanization, biotechnology and irrigation. Farmers normally match their adjustments with variation of soil, terrain, and climate and the crop management rather than going into strict application of science of cultivation. Such type of holistic approach is developing among the farmers.

Creating a structure to facilitate the agricultural growth by enhancing the food processing industry is a new dimension to avoid the vibrant seasonal prices of agricultural produces. Through this farming may become a profession. If the prices of the agricultural products are remunerative, then the farmers may prefer to sell their produce in the market, if not, they may proceed to process it in an industrial enterprising. This type of culture in agri-business has to be developed to avoid the seasonal downfall of the prices.

Financial break up of the institutional sources of credit by leading agencies like Primary Agricultural Credit Societies, District Central Cooperative Banks, Regional Rural Banks, Public Sector/Nationalized banks etc. to agriculture sector brings out the declining share. This dropped from 69.2% in 1991-92 to 57.1% in 2008-09. While that of non-institutional loans rose from 30.6% to 42.9% during the same period.

This can be accepted as paradigm shift in the agriculture sector since green revolution which invoked into inward looking policies towards this core sector. On this background Agronomic strategies for sustainable agricultural development promptly rose to as a challenge to the sector which can abruptly be converted into an opportunity to Indian agriculture.

According to Mr. Jawaharlal Nehru, “Everything else can wait, but not agriculture.” This is even true today. On the beginning of second decade of new millennium, the challenges before us are to sustain food security and have some surplus for exports to take advantage of the wind of globalization.

Towards Sustainable Agriculture

In the context of agriculture, “sustainability” refers to the capacity to remain productive while maintaining the resource base. It is accepted principle that “agriculture is sustainable if it is ecologically sound, economically viable, socially just humane and adaptable.” Sustainable agriculture is being represented by farming systems in which the use of purchased chemical-based inputs is significantly decreased in comparison to conventional agricultural systems, soil erosion is controlled and weeds managed. There is maximum efficiency of on farm and purchased inputs, maintenance of soil fertility by proper addition of plant nutrients, and the basic utilization of biological principles throughout the farming operation.

Prime Minister Dr. Manmohan Singh and Indian agricultural expert has called or an “Second Green Revolution” or “Evergreen Revolution” in growing food crops that world combine science, economics and sociology to boost production in a way that can be maintained for decades to come. It is rather an integrated and completed approach. It cannot be restricted to any single crop or to a few states. Instead it will cover almost all major crops of India or all agro-climatic zones of India. Green Revolution was mainly due to high yielding varieties, fertilizers and irrigation facilities whereas Evergreen Revolution would be contributed by integration of several factors like Soil Management, Water Management, Integrated Weed Management, Integrated Pest Management, Integrated Nutrient Management, Tissue culture, Genetic Engineering etc.

Plant Tissue Culture can be used as commercial tool for growing orchid in Kerala. The programme was aimed at housewives. Interest was generated through articles on floriculture in a leading women's magazine. Tissue Culture planting material and other inputs was provided at reasonable costs. Technical know how was imparted through regular training programmes and workshops. Marketing assistance was provided.

Crop Rotation is a planned sequence of growing different annual or perennial crops in the same field. Rotations are the opposite of continuous cropping, which is growing the same crop in same field year after year. Crop rotations can be used to improve or maintain good physical chemical and biological conditions of the soil. Rotation also reduces fertilizer needs.

Rainfed agriculture, or 'Dryland farming', sustains 67% of the arable land area in India. They are called 'Grey' because they are dry most of the year and lack of sufficient amount of fundamental input that is so essential for agriculture. Unreliable

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rainfall distribution is the leading factor inhibiting the development of rainfed agriculture. This erratic rainfall is also the primary cause of droughts and floods in India. In addition soils in these regions are degraded and have poor fertility, and farmers are resource poor with small scattered, marginal holdings, efficient rain water management and integrated nutrient supply systems would need in rainfed areas.

To make India food secure nation, it is necessary either to bring more area under cultivation or increased productivity of existing agriculture. Land is shrinking day by day because of increasing pressure of urbanization and industrialization. Therefore the need is to increase the productivity of existing agriculture and minimize the use of water. Optimum fertilizers with another input play an important role in maximizing the agricultural production.

'Fertigation' is the best practices for sustainable agriculture, whereby both water and fertilizers are delivered to crops simultaneously through specialized irrigation techniques such a micro-irrigation enabling the application of water by means of drippers, micro-sprinklers and micro-sprayers. This combines the benefits of drip irrigation efficient fertilizer application for increasing the productivity.

Bio-fertilizers a solution for Green Millennium Bio-fertilizers are derived from various nitrogen- fixing and phosphate-solubalizing microorganisms. These organisms are found in soil, water and leaves surface. A farmer has to be educated or trained in farm production of bio-fertilizers like Azolla and blue green algac.

Information technology will also have a huge impact in helping farmers adapt their crops and management to their environment allowing farmers to get vital information about weather, disease and pest epidemics, input market prices, crop management advice, and many other things. The availability of direct web-site link to different agricultural institutions in India that can exploited by farmers and public extension system for information dissemination.

In the agro-based Indian economy, the Indian farmers are an important human resource and vital link of agricultural production. Without bringing a smile of happiness and prosperity over his face, no foundation of long-term agricultural development can be laid in the country.

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