

Agriculture Development Policies, Techniques and Commercialization with reference to India

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ABSTRACT

Agriculture has always been the backbone of the any world Economy and despite concerted industrialization in the last six decades; agriculture still occupies a place of pride. Agriculture has a long history, dating back to ten thousand years in India. The pressure on agriculture to produce more and raise farmer's income is high; second, the dependence of the rural workforce on agriculture for employment has not declined in proportion to the sectoral contribution to GDP. Agriculture and allied sectors like forestry and logging accounted for 16.6% of the GDP in 2007, employed 52% of the total workforce and despite a steady decline of its share in the GDP, is still the largest economic sector and plays a significant role in the overall social- economic development aims at establishing a sustainable and viable farming and livelihood support system through debt relief to farmers, improved supply of institutional credit, crop-centric approach to agriculture , assured irrigation facilities ,watershed management, better extension and farming support services, improved marketing facilities and subsidiary income opportunities through horticulture, livestock, dairying, fisheries.

Keywords: *Agriculture, farmers, economic, farm output, credit*

I. INTRODUCTION

India is the largest producer in the world of fresh fruit, fennel, badian , coriander, tropical fresh fruit, pigeon peas, pulses, spices, millets, castor oil seed, sesame seeds, safflower seeds, lemons, limes, cow's milk, dry chilies and peppers, chick peas, cashew nuts, okra, ginger, turmeric guavas ,mangoes, goat milk and buffalo milk and meat. India is also the largest producer of millets like Jowar Bajra and ragi. It is second only to china in the production of rice. India is the 6th largest coffee producer in the world. It also has the world's largest cattle population (281 million).it is the second largest producer of cashews, cabbages, cotton seed and lint ,fresh vegetables, garlic, egg plant, goat meat, silk, nutmeg mace, cardamom ,onions, wheat ,rice, sugarcane, lentil, dry beans, groundnut, tea, peas, cauliflowers, potatoes, pumpkins, squashes, gourds and inland fish. it is the third largest producer of tobacco, sorghum, rapeseed, coconuts, hen's eggs and tomatoes India accounts for 10% of

the world's fruit production with first rank in the production of mangoes, papaya and banana. India's population is growing faster than its ability to produce rice and wheat. India's total geographical area is 328.7 MH, of which the net sown area is 140.0 MH. The gross cropped area is 192.2 MH and thus the cropping intensity works out to 137.3 percent. The net irrigated area is 63.3 MH as per land use statistics 2009-10. Agriculture sector shows diversification in India. The paper shows agricultural trend in last few years. Agriculture sector is a key factor for Indian Economy.

Some amazing facts:

India has the largest area in the world under pulse crops.

India is the first in the world to evolve a cotton hybrid.

India has the world's highest percentage of arable land to the total geographical area, in the world.

About 50% of India's geographical area is used for agricultural activity. With the spread of irrigation facilities, the introduction of high yielding variety of seeds and farm mechanization, the vulnerability of the Indian agricultural to earlier.

About 80 percent of India's farmland is used to grow India's main foods grains and pulses, the seeds of various pod vegetables, such as beans, chickpeas, and pigeon peas.

India has the world's largest cattle and buffalo population. These animals are not butchered for meat, but farmers keep cattle and water buffaloes for plugging and for milk. Most commercial milk production comes from water buffaloes. Hides from cattle and water buffaloes are used for from water buffaloes .hides from cattle's water buffaloes are used for leather after the animals have died. Sheep are raised mostly for wool and sheepskin.

Dairy accounts for nearly 26%of the total value of agricultural output. India has the world's second highest production of milk .India possesses 26 good breeds of cattle and six breeds of buffaloes. India's cattle is renowned the world over for its quality of endurance and resistance to tropical diseases.

India grows more than half of the world s mangoes and leads all countries in the production of cashews, millet, peanuts, pulses, sesame seeds, and tea.

The nation ranks seconds in the production of cauliflowers, jute, onions, rice, sorghum, and sugar cane.

India is a major producer of apples, bananas, coconuts, coffee, cotton, eggplants, oranges, potatoes, rapeseeds, rubber, tobacco, and wheat.

India is also the world's largest grower of betel nuts, which are palm nuts chewed as a stimulant by many people in tropical Asia. it is also a leading producer of such spices as cardamom, ginger, pepper, and turmeric.

In terms of gross fertilizer consumption, India ranks fourth in the world, after the USA, the erstwhile USSR and china.

India lives mainly in its villages, 600,000 of them.

Agriculture provides livelihood to about 65%of India's labor force.

Agriculture contributes nearly 33% to India's gross domestic product (GDP)

Agriculture accounts for about 10%of India's exports.

The farmers and their families use most of their crops. Half of all Indian farms are less than 2.5 acres (1 hectare) in area .only 4 percent cover more than 25 acres (10 hectares).about two –thirds of the farmers in India owns their own land. Most of their farms become smaller and smaller with each generation because of inheritance customs.

Under the congress rules 2011-12

New Delhi, Aug 13 : The centre has launched a new scheme on “vegetable initiative for urban clusters” during 2011-12 with an out lay of Rs.300 Corer under the aegis of the rashtriya krishi vikas yojana.

New Delhi, Aug 15: asserting that there is a need for a second green revolution in agriculture, Prime Minister Dr. Manmohan Singh on Monday said the problem of rising food prices can only be dealt by increasing agricultural production and productivity.

President Pratibha Patil Sunday called for greater use of technology in the agriculture sector to ensure better productivity and increased focus on issues like labor shortage.

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III.METHODOLOGY

The Objective of the study is to know the diversification of Indian agriculture, Growth performance of major crops at national level, Area, production and productivity of major crops, Production and availability of various types of seeds, Agricultural Trade and Export scenario, Mechanization and technology uses; Agriculture holding condition; Change in Cropping Pattern; Horticulture Scenario (Area, Production and Productivity) in Indian Agriculture. We use secondary data for the study available from various sources.

IV.AGRICULTURE GDP TREND

Advanced estimates of national income 2012-13 shows that agriculture and allied sector contributed 13.7 percent of India’s GDP. Gross Domestic Product (GDP) of agriculture and allied sector and its share in total GDP of the country during the last 3 years and the current year at 2004-05 prices, is as follows:

Item	Year			
2009-10	2010-11	2011-12	2012-13	
GDP of	660987	713477	739495	752746
Agriculture and Allied Sectors				
% of total GDP	14.6	14.5	14.1	13.7

Table shows that, there has been a continuous decline in the share of agriculture and allied sector in the GDP from 14.6 percent in 2009-10 to 13.7 percent in 2012-13 at 2004-05 prices. Falling share of agriculture and allied sector in GDP is an expected outcome in a fast growing and structurally changing economy.

Agriculture productivity in India, growth in average yields from 1970 to 2010

Crop^[18]	Average YIELD, 1970-1971	Average YIELD, 1990-1991	Average YIELD, 2010-2011
	kilogram per hectare	kilogram per hectare	kilogram per hectare ^[67]
Rice	1123	1740	2240
Wheat	1307	2281	2938
Pulses	524	578	689
Oilseeds	579	771	1325
Sugarcane	48322	65395	68596
Tea	1182	1652	1669
Cotton	106	225	510

India and China are competing to establish the world record on rice yields. Yuan Longping of China National Hybrid Rice Research and Development Centre set a world record for rice yield in 2010 at 19 tonnes per hectare in a demonstration plot. In 2011, this record was surpassed by an Indian farmer, Sumant Kumar, with 22.4 tonnes per hectare in Bihar, also in a demonstration plot. These farmers claim to have employed newly developed rice breeds and system of rice intensification (SRI), a recent innovation in farming. The claimed Chinese and Indian yields have yet to be demonstrated on 7 hectare farm lots and that these are reproducible over two consecutive years on the same farm.

Agriculture a crawling sector due to following reasons

1. Agriculture credit:

To share of co-operative bankers (22 per cent) during 2005-06 was less than half of what it was in 1992-93(62 per cent),while the share of commercial banks(33 to 68 percent) including RRBs(5 to 10percent) almost doubled.

In terms of total credit to agriculture, the commercial banks recorded a considerable growth (from around 13percent to about 21 percent), cooperative banks registered a fall (over 14% to 10%).

2. State-wise Distribution of Institutional Credit:

There are wide variations in the availability of institutional credit per hectare of gross cropped area in different states. It was as high as Rs. 4,604 in Andhra Pradesh, while it was as low as Rs.311 in Assam, Rs.667 in Rajasthan and Rs.698 in Madhya Pradesh during 2001-02.

3. Resent policy Initiatives:

The Finance Minister in his Union budget 1995-96 speech stated that, “Inadequacy of public investment in agriculture is today a matter of general concern. That is an area which is the responsibility of States. But many States have neglected investment in infrastructure for agriculture. There are many rural infrastructure projects which have been stated but are lying incomplete for want of resources. They represent a major loss of potential income and employment to rural population.” Rural infrastructure development fund (RIDF) was set up in NABARD. Since then, 11 tranches of allocation have been made towards the fund. Commercial banks make contributions towards the fund on account of the shortfalls in their priority/ agriculture sector lending. The scope of RIDF has been widened to enable utilization of loan by Panchayati Raj Institution (PRIs), self-help groups (SHGs), Non-Government Organization (NGOs),etc., since 1999-2000. Special Rehabilitation Package for the districts severely affected by Farmers’ Suicide the incidents of suicide by farmers have been mainly reported from the states of Andhra Pradesh, Karnataka, Maharashtra, and Karla, such incidents have also been reported from reported from the states of Orissa, Gujarat, and Punjab. To mitigate the distress of of farmers, the Government of India decided to launch a special rehabilitation package in 31 districts in the states of Maharashtra, Andhra Pradesh, Karnataka, and Kerala.

For alleviating the hardships caused to debt stressed families of farmers in the affected districts, ex-gratia assistance from prime Minister’s National Relief Fund (PMNRF) was also proposed.

BUDGET 2017-18: ANNOUNCEMENTS FOR AGRICULTURE SECTOR

- Push to reforms in agriculture marketing. New model law on contract farming

- Rs9,000 crore for Crop insurance, up from Rs5,500 crore budgeted for 2016-17

- Agriculture Credit disbursement target of Rs10 trillion, up from Rs9 trillion in 2016-17

- Additional Rs20,000 crore to NABARD for long term irrigation fund, Rs5,000 crore for setting up a dedicated micro irrigation fund

- Rs8,000 crore dairy development fund under NABARD

- Assistance to rural entrepreneurs to set up soil testing labs in Krishi Vigyan Kendras

- Rs1,900 crore support to NABARD to bring co-operative banks under core banking platforms

- Total support to rural and agriculture sector raised by 24%, to Rs1.87 trillion in 2017-18

Source: Budget Speech by Finance Minister Arun Jaitley on 1 February, 2017

4 Issues:

One of the major impediments constraining the adoption of new technological practices, land Improvements and building up of irrigation and marketing infrastructure has been the inadequacy of farm investment capital. Out of the total number of suicide cases reported, 76 per cent of the victims were dependent on the rain-fed agriculture and 78 percent were small and marginal farmers. An important finding was that 76 to 82 percent of the victim households had borrowed from 24 to 36 percent. The following measures were taken to handle the problems. These include improvement irrigation coverage; crop diversification; promotion of animal husbandry as an alternate source of income; better accessibility to institutional credit and overall improvement of the marketing infrastructure.

5 Information Technology :

Uninterrupted power supply (UPS) devices are crucial to ensure the longevity of the IT equipment as well as provided backup mechanisms. The potential of solar power packs to provide a feasible solution of power in the rural areas needs to be exploited. The indirect benefits of IT sector in empowering Indian farmers are significant and remain to be exploited. The Indian farmer urgently requires timely and reliable source of information inputs for taking decisions. At present, the farmer depends on trickling down of decision inputs from conventional sources which are slow and unreliable. The changing environment faced by Indian farmers makes information not merely useful, but necessary to remain competitive.

An area of immediate concern to farmers is to get an analytical input on how his/her life is going to be affected. Since removal of restriction throw open Indian agricultural markets, the macro economic situation related to foreign exchange, inflation, the current tariff structure within and outside the country etc. and their likely impact on Indian agriculture will have a direct bearing on the decisions of segments of Indian agriculture.

It is necessary to equip Indian farmers to come together for value additions to their agriculture output. This will require system to provide information to farmers on agro processing industries, aqua culture units, animal husbandry etc.

6. Constraints:

Power supply: in most of the rural India, power supply is not available for long hours. This will reduce the usefulness of the intended services. Since almost entire country receives sunshine for most part of the year, it is useful to explore solar power packs for UPS as well as for supply of power. The Ministry of non-conventional Energy sources may pay special attention in this area which can be a major contributor to the growth of IT in villages.

Connectivity: Despite the phenomenal progress made in the recent years, the connectivity to rural areas still requires to be improved. Reliable connectivity is a prerequisite for a successful penetration of IT into rural areas. Many private ISPs are setting up large networks connecting many major towns and cities. Since some of these networks pass through rural areas, it is possible to provide connectivity to a large number of villages. Several

technologies exist that can be utilized for connecting rural areas. Cable network is a possible medium for providing the last mile connectivity to villages.

Bandwidth: even in areas where telephone and other communication services exist, the available bandwidth is a major constraint. Since internet based rural services require substantial use of graphics, low bandwidth is one of the major limitation in providing effective e-service to farmers.

7. Improving farmer access to modern farming practices and information:

Farming practices followed in India today considerably lag behind the methods followed in other parts of the world. Indian farming still suffers from a lack of mechanization; using only 15 tractors per 1,000 hectares of agriculture land (vs. Japan, which uses 461 tractors, and the United Kingdom, which uses 88 tractors), while practices followed for seeding, irrigation and plant protection are either outdated or dependent on manual labour. This can largely be attributed to the fact that most Indian farmers do not have access to the solution used in more developed nation, either because India's farmers lack access to information on global agriculture developments or are too poor to afford them. Unfortunately, this is a vicious circle where the lack of education and capital repeats means that the farmer, and rural population as a whole, never breaks the paradigm and so never get the education and capital they need, leaving India's rural population and the sector as a whole, immobilized. Solving for this challenge is critical if India hopes to improve its agriculture productivity levels to those of other Asian economies.

8. Enabling lands consolidation:

Indian farmers land holdings, always sub-scale have been in continuing decline, due to a combination of growing population, and inadequate growth in off-farm employment opportunities (commensurate to overall labour force growth).the average size of agricultural land holdings in India per farmer has decreased from 2.3 hectares in 1970 to 1.2 hectares in 2011, well below the global average of 3.7 hectares. the increased fragmentation of India's agricultural land has resulted in poorer access to credit for farmers, a lack of mechanized equipment(since most mechanized equipment is too large for these holdings) and an over-reliance on agricultural middlemen to aggregate output.

9. Direct Government investment,(rather than only subsidy):

Nearly 80% of government investment in India's agriculture sector today is in the form of crop price support or input subsidies for agricultural inputs, including fertilizers, power and water. it would be more prudent for these funds to be channeled into investments that support productivity and the long-term competitiveness of the sector (such as technology and modern equipment),which are estimated to be three to four times more effective than investments on subsidies. As things stand, however, this type of investment is being made almost exclusively entirely by the private sector, a state of affairs that is not sustainable for long-term sector growth.

10. Improving Institutional credit availability for farmers:

As highlighted above, an important consequence of increased agricultural land fragmentation in India is a lack of institutional credit available to farmers. Recent surveys reveal that only 14% of marginal farm holding (less than 1 hectare) owners and 27% of small farm holding (less than 2 hectares) owners are able to obtain credit from formal institutions. The majority of farmers are therefore either forced to borrow money at a significantly higher cost from local unorganized lenders –with many borrowers subsequently unable to service these financing costs and being forced to relinquish their land –or rely on out dated, manual labour for their operations.

Each of these challenges has been extensively researched by leading Indian and international organizations) and their solutions are also clear. The issue, however, has always been about timing. The approximately 260 million people that are currently employed in India's primary sector form an important political voting group for the country's fragmented political landscape. as a result ,big-ticket reforms in the sector have been few and far between, with successive governments either too afraid to alienate India's farmers by implementing bold, but unpopular measures, or unable to build the political consensus (particularly) among regional political parties) required to pass important agriculture –related legislation. Within this context Prime Minister Modi's government finds itself in a unique situation, currently holding an overwhelming majority in the lower house of parliament while gaining strength in the upper house and controlling state legislatures that represent a little over 40% of India 's population. Given that simply having an opportunity does not yet ensure success, the threat of inaction is substantial too. While the modi government does not have an effective opposition, it does have the salutary lesson of the electoral defeat of the BJP- led government in 2004 outlined above. if the government hopes to transform India's agriculture sector, it will need to form a bold vision of what agriculture could mean to India and expend some of its political capital to engage with farmers, local political leaders, consumers, academia and industry bodies and launch a number of scaled and radical initiatives.

V. CONCLUSION

Indian agriculture still suffers from: 1)poor productivity,2)falling water levels,3)expensive credit,4)a distorted market,5)many intermediaries who increase cost but do not add much value,6) laws that stifle private investment,7)controlled prices,8)poor infrastructure, and 9)inappropriate research.

There is also a need for exploring new innovations in product design and methods of delivery, through better use of technology and related processes. Agriculture provides employment to around 60 percent of the total workforce in the country. The significance of agriculture in India arises also from the fact that the development in agriculture is an essential condition for the development of the national economy.

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