

Agricultural Policy in India: A Critique on Inclusive Growth

K.C. Baijju¹

Abstract

The agriculture sector had effectively been kept out of the multilateral trading system established through the GATT in 1947. This anomaly was rectified during the Uruguay Round Negotiations, culminating in the formation of WTO in 1995, when multilateral disciplines were introduced in the agricultural sector. The WTO Agreement on agriculture seeks to improve market access and to reduce trade distorting subsidies in agricultural products. India has been arguing for the introduction of a regime which provides adequate protection to the domestic sensitivities in the agricultural sector. The greatest achievement acclaimed through media by the UPA 1&2 governments was the lifting of 140 million people out of poverty in the last 10 years. This has a strong bearing and implication on the agriculture policy pursued in India and the question of inclusiveness. This paper attempts a critical evaluation and discussion of the agricultural policy in India over the decades and its pro-activeness towards inclusiveness.

(Key words: agricultural policy, Indian agriculture, domestic support, export competition inclusiveness)

Introduction

Indian agriculture has come a long way since independence. Having developed through different era from traditional farming of post independence time to mechanized farming to the green revolution of sixties to biotechnological regime and presently to the genetic engineering era the sector still forms the backbone of Indian economy. Its performance over the last sixty years has however, revealed both its strengths and weaknesses. Agricultural production in the country has increased faster than the population growth in recent decades, thus leading to a stable increase in per capita agricultural output particularly of food grains (record production of over 300 million tons in 2010) (CSO, 2012 & GOI, 2011). The increase in per-capita agricultural output has been achieved mainly with technological change that has led to an increase in yield through increased use of modern inputs such as improved seeds, irrigation-water, fertilizers, pesticides, etc. In a dramatic shift from historical trends, expansion of cropped area has played a small role in increasing agricultural production in the recent past and technological change has been a major production growth strategy in the post-green revolution period.(Sharma, 2012). These achievements have been counter balanced by several other factors: declining growth rates in productivity for major crops, slow expansion of irrigated area, falling public investment in agriculture, inadequate extension services, extremely low investment allocations for agricultural research, ineffective

¹ Dr. Baijju is an Associate Professor at School of Global Studies, Central University of Kerala.

utilization of land and water resources along with degradation of natural resource base falling area under cultivation are of special concern while framing strategies for balanced regional development. However there is increasing evidence that yield growth is slowing in many food grain-basket regions of India in recent decades, while there is no scope for bringing more area under agriculture (Sharma, 2012).

The agriculture sector had effectively been kept out of the multilateral trading system established through the GATT in 1947. This anomaly was rectified during the Uruguay Round Negotiations, culminating in the formation of WTO in 1995, when multilateral disciplines were introduced in the agricultural sector. The WTO Agreement on agriculture seeks to improve market access and to reduce trade distorting subsidies in agricultural products. It is argued that India has been arguing for the introduction of a regime which provides adequate protection to the domestic sensitivities in the agricultural sector (IFFT, 2002–Not in the reference). The AOA prescribes rules in the areas of market access(tariffs and tariff rate quotas), domestic support(production related subsidies) and export competition(export subsidies, export credit and international food aid). These three elements are commonly referred to as the pillars of agricultural trade reforms.

The greatest achievement acclaimed through media by the UPA 1&2 governments was the lifting of 140 million people out of poverty in the last 10 years. This has a strong bearing and implication on the agriculture policy pursued in India and the question of inclusiveness. For this a critical evaluation of the agricultural policy in India over the decades and its proactiveness towards inclusiveness are to be discussed.

Global Scenario

According to the UN population Fund the seventh billion world citizen was born in Oct, 2011. By 2050, it is expected that nine billion people will be born on this earth, and food and agriculture organization of the UN estimates that by then food production will have to be doubled. Many of the newly born will be living in a developing country. It is we, people, who is to decide and put every effort to produce sufficient and accessible food in a sustainable way. Thus, it is imperative for us to create a better environment for all so that food security is secured and all of us can live decently on this earth. In the global scenario on agriculture, food security favour and inclusive growth can be debated on the following fundamental areas:

- a) Are small holders or large scale farms enterprises going to feed the world?-revealing arguments favour that small holders or peasant producers are in fact more efficient in their use of scarce resources while often on the reverse, the large scale agriculture, which is hydrocarbon intensive, is actually less productive in comparison.
- b) In the period, 2007-08 and in 2011, prices of food staples rose dramatically, provoking more hunger and mal nutrition in the developing world, as low income households spend most of their earning on food. Were the price increases, the consequence of insufficient production (low productivity) in combination with increasing demand for food, while the expanding production of bio- fuel crops competed for land with food staples? Or increased speculation of future markets? What is the role of energy markets, with ever rising fuel prices that translate into more to higher prices for external inputs for agriculture?
- c) Is the large scale or the small holder is best for the environment and bio-diversity? Are the large investments in land actually improving land quality, or do they lead to

large scale external input dependent production which negatively affects water resources and bio-diversity and contributes to deforestation and land degradation in the long run? And what is the impact of the ever-widening spread of genetically modified crops on bio-diversity and position of small holder?

- d) Should food security be trade-based, as is argued by the WTO and others as the most efficient way of acquiring food when demanded in an even globalizing international food market? Or, is there is a need and real possibility for food sovereignty in view of the growing power of international food and agriculture –business that has created new food regimes, 4Fs- (Food, Feed, Fibre, Fuel). Hence, what is the fate of the process of hyper marketisation?
- e) In the World Development Report, 2008, small holders back into the agenda of market inclusion through value chains: one should ask whether the small holder who will be linked, through contract agricultural, outsourcing, or land leases will actually able to benefit or whether this linkage makes the process of land eviction and dispossession in fact easier and faster to his/her decision?

The foregoing debates at global scenario get much significance as one looks into the growth performance of Indian agriculture adjunct with inclusiveness and sustainability. It is argued in studies that in order to have a double digit growth in the long run agriculture in India will have to grow at least by 4 percent annually. Such agricultural growth can be attained with a total factor productivity growth rate (TFPGR) of 2 percent along with developing the net irrigated area to 90 million hectares from the current status of 63 Million hectares. But in the past two decades agriculture growth has been less than 3 percent. And productivity growth has been less than 2 percent. Indian agriculture is also considered to be vulnerable to the threat of ‘climate change’, which is expected to lead to global price increases and make reliance on imports less acceptable.

In a research study, discussed the growth prospects of India in terms of GDP, agricultural productivity based upon a demand projected model for the period 2007-39, perceives that consumption behavior of classes at much higher income levels where income elasticities of demand of food will be much lower than today. In his model, he also looks into the probing question of why was the growth rate of GDP only less than 9 percent in the reference scenario 2007-39? To him, the reason is we maximize consumption in it and given the limited land, irrigation capacity and import restrictions, agriculture supply is limited and consumption cannot be increased further. The study predicts that the economy is being constrained by the availability of agriculture commodities from 2023 onwards. The changing structure of food consumption pattern may be an added reason. The share of all high value commodities rise from 12-13 percent for meat, fish and egg from 18-21 percent for horticulture and from 17-31 percent for milk and milk products. These high valued products will therefore constitute almost all two thirds of the total food consumption expenditure. The study concludes that a growth rate of agricultural total factor productivity growth of at least 3 percent is needed to achieve an agricultural GDP growth rate over 5.6 percent which would be consistent with an inclusive GDP growth rate of more than 10 percent.

Regarding water use efficiency and irrigation, the study estimated that even with an agricultural total factor productivity growth rate of 2 percent, an economic growth rate of nearly 10 percent is attainable if irrigation can be expanded to 108 million hectares.

The study argues that the domestic agricultural supply can be increased if we permit larger imports. In this context the study found that there is ample chance for increase in the

level of food grain import. It is estimated that the total imports would be 69 million tonnes by 2039 compared to 18 million tonnes in the reference period. Despite such large increase in imports, the growth rate of GDP increases by a modest amount.

Impact of high irrigation, high total factor productivity growth and larger imports would give an optimistic scenario with full development of irrigation, higher import bound and a higher total factor productivity growth of 3 percent in both agriculture and non-agriculture. This would lead to a growth of agriculture of 6.28 percent and to double digit growth of 11.55 percent of per capita consumption and 11.71 percent for GDP. An inclusive growth rate of nearly 12 percent therefore requires an agricultural total factor productivity factor of 3 percent and full development of irrigation that results in an agricultural growth of more than 6 percent and imports of food grains at 69 million tones. The study concludes that if the economy achieves a growth pattern that reach a double digit growth with improved technology, high irrigation, high imports can bring together virtually no poverty by 2039. However, if the double digit GDP growth is realized at the cost of private consumption, even in 2039, there would be 111 million poor people. Thus it is emphasized that at least a 4 percent growth rate of agricultural GDP is needed to support GDP growth rate in excess of 8 percent. This can be attained with a slightly optimistic agricultural total factor productivity growth of 2 percent along with a slightly optimistic rate of development potential of 90 million hectares.

However, in the past two decades, agriculture growth has been less than 3 percent and productivity growth has been lower than 2 percent and irrigation growth is not at a desirable level. This may be aggravated by the phenomenon of global warming. With the given conclusions, the present paper discusses the agricultural policies pursued by India in addressing the major issues and challenges related to growth, food security and inclusiveness.

At the time of independence, the share of agriculture in total GDP was more than 55 percent and about 70 percent of the population was dependent on agriculture for livelihood. Food grain production during the first three five year plans remained stagnant and India faced crisis in food production. The introduction of HYV in mid 1960s yielded spectacular results and the food grain increased to the volume about 83.4 million tones to during 1964-65 to 1971-72. Subsequently, the country that was threatened by hunger and high dependence on import as late as in mid 1960s became one of largest producers of many agricultural commodities. Even though we do have self sufficiency in food grains for the time being, the problem of hunger is one of access and income distribution rather than shortages. Today, about 407 million people in India below the poverty line (GOI, 2009) and about 42 percent of all children under 5 years suffer from malnutrition (Hungama Survey Report, 2011–Not in the reference). India has high population pressure on land and other resources to meet its food and development needs. The declining size of land holdings, the near stagnant or low productivity of our crops, rise of temperature as a result of global warming leading to the decline of productivity of major crop like wheat in northern regions and threat of land degradation is alarming large on the agricultural sector. At the international level too, Indian agriculture is facing competition from developed countries due to Liberalization, Privatization and Globalization following the post WTO regime. The natural resource base of land, water and bio-diversity is under severe pressure. Food demand challenges ahead are formidable considering the non-availability of favourable factors of past growth, fast declining factor productivity in major cropping patterns and rapidly shrinking resource base. There are serious gaps both in yield potential and technology transfer as the

national average yields of most of the commodities are low. Increase in demand for food due to increasing population, rising income levels, and other demographic change will require continuous increase in agricultural production.

The Indian economy has undergone structural transformations from agricultural based to knowledge based services and industrial economy. But the agricultural sector remains still the main stay for their livelihood. (GOI, 2009) the contribution of agricultural sector to GDP has continued to decline while that of other sectors particularly service has increased (CSO, 2012).

During the last four decades, there was more than 30 percent point decline in the agricultural GDP while the decline in the share of agriculture in employment was less than 20 percent. The other striking structural changes are: increasing disposable income levels, increasing urbanization, changing demographics and lifestyles, and increase in availability of food have been accompanied by changes in the composition of diet. The share of high value-products in food composition has increased significantly both in rural and urban areas. (NSSO, 66th Round) There is a clear shift in the consumption pattern from staple food grains towards fruits and vegetables, livestock products and fisheries (Baiju, 2002). This clearly hints that farmers have responded to market signals and diversified into high value agriculture under given technological, institutional and infrastructural constraints. At the time it is noted that the share of high value agriculture in the total agriculture exports have increased. Marketing chains are changing in all developing countries. Supermarkets and expanding rapidly and may become dominant players in controlling access to retail markets in developing countries including India (Gulati, 2009). These changes will pose challenges as well as provide opportunities to small holder producers, who constitute about 83 percent of the total farm in the country, since they do have poor access to input and output markets, institutional credit and hence finding it difficult to meet the requirements of changing markets in terms of quality, volume and cost. It is apprehended that if it is left to market forces alone, the major beneficiaries of new high value and globalised agriculture will be largely big and commercial farms who have access to technology, capital, infrastructure, and markets (Sharma, 2008).

There are crops that have witnessed the phenomenal growth due to the introduction of technology. (Fore.g.: BT technology in 2002) It improved crop yield but there was a substantial reduction in the use of pesticides which resulted in higher incomes. (Gulati, 2009) technological change has been a major production growth strategy in the post green revolution period. Trends in area, production and yield of food grains, non-food grains and all crops from 1950-51 to 2010-11, explains this trend.

Table 1: Compound Growth Rates of Area, Production and Yield of Food grains, Non-Food Grains and All Principal Crops during 1951-52 to 2010-11 (Base: TE 1981-82 = 100)

Period	Food Grains			Non Food Grains			All Crops		
	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield
1951-52 to 1965-66	1.12	2.64	1.51	2.07	3.70	1.00	1.29	2.72	0.93
1966-67 to 1980-81	0.51	2.82	2.30	0.87	2.49	1.42	0.58	2.62	1.62
1981-82 to 1990-91	-0.23	2.85	2.74	1.12	3.77	2.31	0.10	3.19	2.56
1991-92 to 2000-01	-0.07	2.02	1.52	1.18	2.69	1.09	0.27	2.29	1.33
2001-02 to 2010-11	0.37	2.12	2.89	2.26	3.67	2.49	0.91	2.50	3.25

Source: GOI(2011)

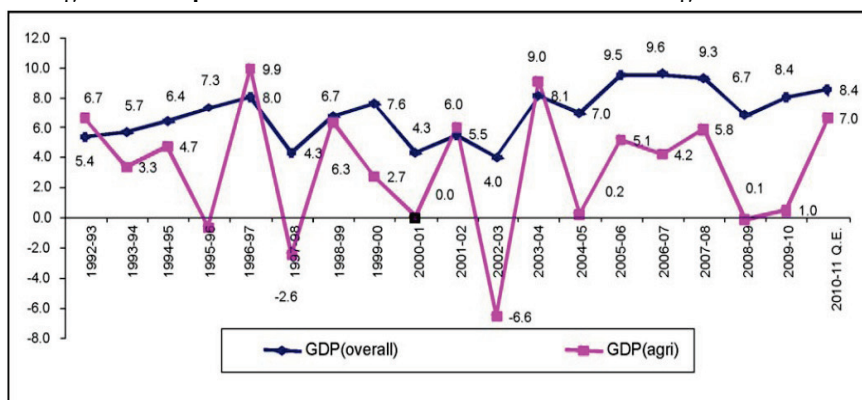
Trends in area, production, and yield of food grains, nonfood grains and all crops between 1950-51 and 2010-11 are explained in table 1. The food grains production grew at about 2.64 percent per annum in the pre-green revolution period (1951-52 to 1965-66) and area growth contributed to the output growth (Table 1). The new HYV seed-fertilizer technologies led to a significant increase in food grains in 1980- 81 at an annual growth rate of 2.82 percent. Improvement in yield (2.3 percent) contributed to increased production while the contribution of area was very small (0.51 percent). The decade of the 1980s witnessed favorable and broad based agricultural growth in India, including other regions and important crops and sub-sectors. The food grains production recorded an annual compound growth rate of 2.85 per cent, mainly driven by productivity improvement (2.74 percent) while the area under food grains witnessed a negative growth rate (-0.23 percent). The growth in non-food grains production also increased at a much higher rate of growth (3.7 percent) compared with the period 1966-67 to 1980-81 and both area expansion and yield improvement contributed to output growth.

It is evident from table that, growth in agricultural sector decreased as 2.29 percent during the 1990s. The growth rate in food grains production declined from 2.85 percent in 1980s to 2.02 percent in 1990s and growth rate in yield fell from 2.74 percent to 1.52 percent during the same period. The same trend was observed in the case of nonfood grains. During the 1990s, tiredness in the agricultural and rural economy became a serious problem, in contrast to rapid growth in non-agricultural sector, particularly services sector and urban areas.

Concerned with slow growth in the agricultural sector during the 1990s, the government focused concentrated attention on agriculture in the last decade and more particularly since 2005-06. Public investment in agriculture increased significantly, government initiatives like Minimum Support prices, National Food Security Mission (NFSM), Rashtriya Krishi Vikas Yojana (RKVY), National Horticulture Mission (NHM), Flow of Institutional Credits etc. give energy to the agriculture sector. Due to these concerted efforts, there is a definite growth recovery in the agricultural sector during the last decade, the performance increasing particularly in the last 5-6 years. Foodgrains production growth rate increased to 2.12 per cent and the yield growth rate increased to 2.89 per cent during the 2000s.

The increase in divergence between growth trends of the total economy and that of the agriculture and allied sectors suggests an under performance by agriculture (Fig1).

Figure 1: Comparative Performance of Growth of GDP and AgriculturalGDP

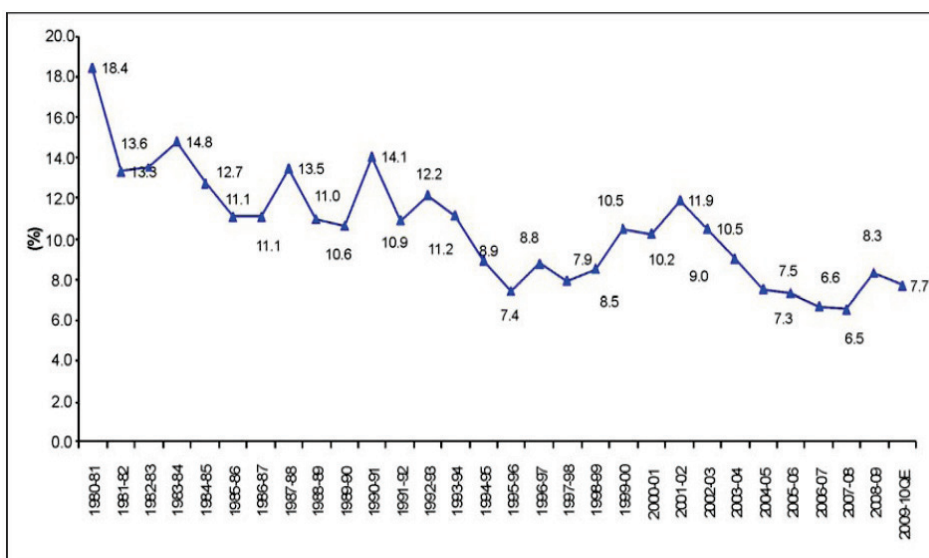


Source: CSO (figures are at 2004-05 prices)

Growth Drivers in Agriculture

The non-agricultural sectors are receiving higher investment as compared to agriculture and allied sectors over the plan periods resulting in growth disparities. Whatever the arguments, keeping in view of the high population pressure on agriculture for their sustenance, there is need for substantial increase in investment in agriculture sector.

Figure 2: Percentage Share of Agriculture & Allied Sector in Total Gross Capital Formation



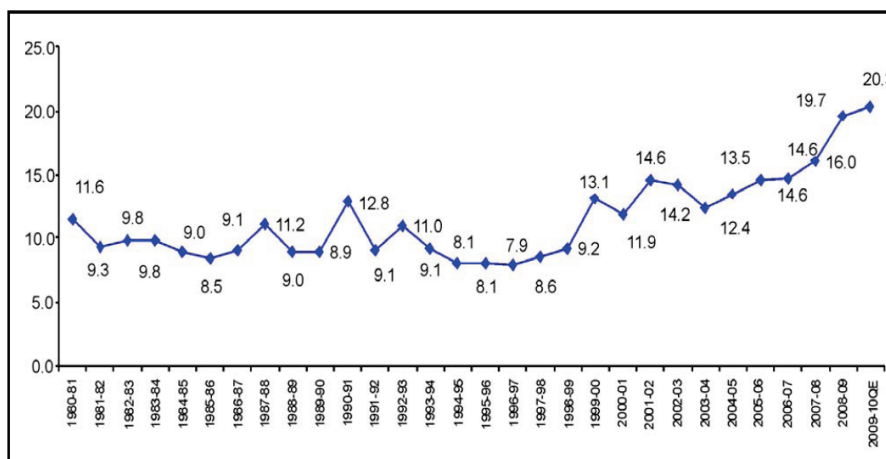
Source: CSO (figures are at 2004-05 prices)

It was evident from the figure that share of agriculture sector in total gross capital formation has declined over these recent years; where as it was around 18 percent during the 80s. These trends show that the non- agriculture sector are receiving higher investment than the agriculture sector. This is also the reason for the overall falling share of agriculture in the overall GDP. Because of the high population pressure on agriculture for sustenance, there is a need for substantial increase in investment in agriculture.

While the gross capital formation as percentage of agricultural GDP has improved substantially, there has not been a commensurate improvement in the rate of growth of agriculture sector

With respect to agricultural subsidies, it is observed that expenditure on subsidies crowds out public investment in agriculture research, irrigation, rural roads and power. Lower public investment due to more emphasis on provision of subsidy will only further deteriorate the quality of public services. Some research studies uphold the view that the marginal returns evident in terms of poverty alleviation or accelerating agricultural growth are much lower from input subsidies than from investments in rural roads, or agricultural research and developments or irrigation (Fan, et al., 2007) there is always a tradeoff between allocating money through subsidies or by increasing investments.

Figure 3: GCF (Agri) as a (%) of GDP (Agri)



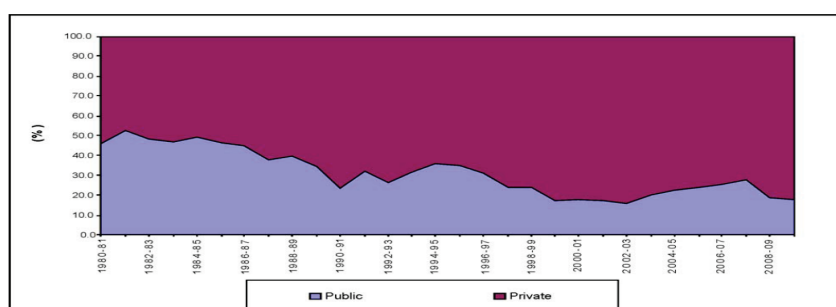
Note: All the figures are at 2004-05 prices.

Source: CSO.

Public and Private Investment in Agriculture

Both public and private investment is required to bring about technological change in agriculture and attain higher agricultural growth. However, Indian agriculture witnessed stagnation and even decline in public investment in some years in the post-reforms period. As a result, the share of public sector Gross Capital Formation (GCF) in total GCF in agriculture and allied sectors declined from more than 36 percent to 15.7 percent during 1992-93 and 2002-03. Private sector investment also showed stagnation/decline during the 1990s; it, however, reversed in 2003-04 when public investment in real terms (1999-00 prices) increased by about 24 percent. The total gross capital formation in agriculture and allied sectors recorded a in the area of public and private investments in agriculture, the economy witnesses a visible shift in favor of private sector investments.

Figure 4: Share (%) of Public and Private Investment in Agriculture & Allied Sectors



Source: Directorate of Economics & Statistics, Ministry of Agriculture & CSO.

The public investment in agriculture has been declining and is one of the main reasons behind the declining productivity and low capital formation in the agriculture sector. Private investment in agriculture has also been slow and must be stimulated through appropriate

policies. Taking into consideration that nearly 70 percent of India still lives in villages, agricultural growth will continue to be the engine of broad based economic growth and development as well as of natural resource conservation, leave alone food security and poverty alleviation. Accelerated investments are needed to facilitate agricultural and rural development. These investments will need to be supported through appropriate policies that do not discriminate against agriculture and the rural poor. Given the increasing role of small farmers in food security and poverty alleviation, development efforts must be lead to meet the needs and potential of such farmers through their active participation in the growth process.

Water and Irrigation facilities for Agriculture

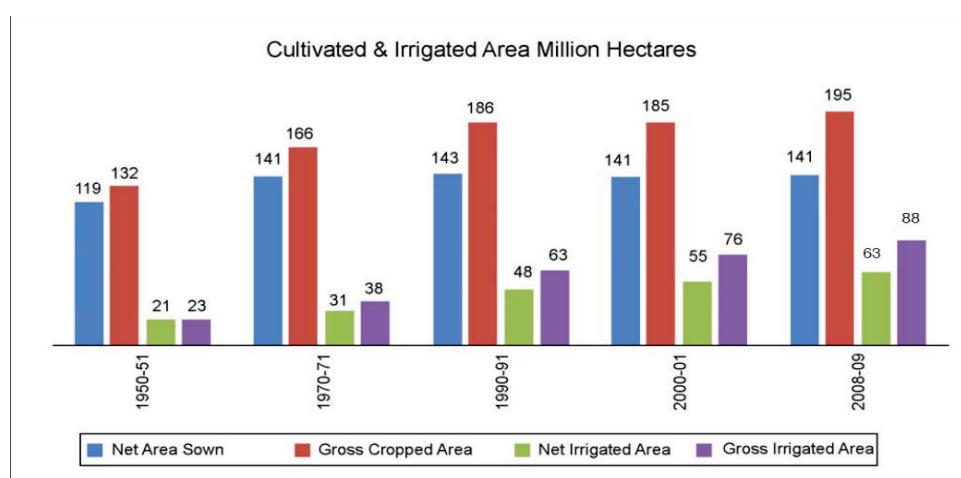
Water is a scarce natural resource, fundamental to life, livelihood, food security and sustainable development. Water demand is increasing rapidly due to population growth, urbanization and changing lifestyle. Agriculture is India's largest user of water, accounting for about 80 percent of the water withdrawals. Owing to increasing demand of water for domestic, industrial and energy uses, there is a severe constraint in the availability of water for agriculture. Climate change might complicate further the existing temporal and spatial variation in availability of water. Extreme events like floods and droughts are occurring more frequently and affecting livelihood and food security. Low water use efficiency, poor maintenance of irrigation systems and poor recovery of water charges are some of the major problems associated with the management of water resources in the country. Inadequate and sub-optimal pricing of both power and water is promoting the misuse of ground water. The decline in the water table across the country is a matter of serious concern. There is a need to promote participatory management of aquifers to ensure sustainable and equitable use of water. Promotion of micro-irrigation techniques, alignment of cropping pattern with the availability of water and greater involvement and empowerment of Water Users associations in the command areas could lead to improvement in water use efficiency.

The ultimate irrigation potential in the country is estimated at about 140 million hectares out of which only about 109 million hectares has been created and around 80 million hectares utilized. Of this, about 58.5 million hectare is from major and medium irrigation sources, and 81.5 million hectare is from minor irrigation sources (about 64.1 million hectare from groundwater irrigation and 17.4 million hectare from surface water). Groundwater provides about 70 percent of irrigation and 80 percent of the drinking water supplies. The widening gap (about 15 percent) between irrigation potential created and that being utilized is also a matter of concern. This gap needs to be narrowed within the shortest possible time. Irrigation remains the most dominant component in the overall investment in agriculture. The net sown area has remained about 140 million hectares during last forty years. The cropping intensity i.e.; the ratio of gross cropped area to net cropped area has however gone up from 118 percent in 1970-71 to 138 percent in 2008-09.

Inefficient water use in irrigation is also leading to environmental degradation via waterlogging and induced salinity. Some studies revealed that availability of water for agricultural use in India may be reduced by 21 percent by 2020, resulting: in drop of yields of irrigated crops, especially rice, thus price rise and withdrawal of food from poor masses. Policy reforms are needed to avoid these negative developments. Micro-irrigation technologies like drip and trickle systems, surface and subsurface drip tapes, micro-sprinklers, sprayers, micro-jets, spinners, rotors, bubblers, etc. have great potential in improving water use efficiency. However, despite wide promotion, only about 0.5 million

hectare are currently under micro-irrigation. Modern techniques such as micro-irrigation, watershed management, rainwater harvesting and groundwater recharging are vital in utilizing the existing resources and expanding the irrigation system in a viable manner. Major investment in research and development that enhance water use efficiency is required. Extension services that reach out to farmers to help boost the speed of technology-adoption as well as develop specialized skills and knowledge related to water application are necessary (GOI, 2012).

Figure 5: Movements in the Gross Cropped Area, Net Sown Area, Net Irrigated Area and Gross Irrigated Area, 1950-51 to 2008-09



Source: GOI.

Use of Hybrid Seeds

Seed holds the key for increased productivity. Together with biotechnology and other crop improvement technologies, seeds offer incredible opportunity for improving the productivity of Indian Agriculture. Indian seed Industry is one of the most mature and vibrant one in the world currently occupying the 6th position with nearly 9000 crore business. During the past 5 years the Indian Seed Industry has been growing at a CAGR of 12 percent compared to global growth of 6-7 percent. In value terms the major growth has come from the increased adoption of BT cotton hybrids, single cross corn hybrids and hybrid vegetables.

Use of hybrid seeds remain a catalyst of change in agriculture, which has been proved during the green revolution (during 1970s) and lately during the decade of 2000. (e.g.: BT cotton seeds and hybrid Maize seeds) The revealing fact in this context is that earlier the high yielding seeds came from public institutions but lately they are increasingly coming from the private sector in selected crops. The seeds bill seeks to answer some of these concerns, while increasing the level of public investment in domestic R&D along with the institutional reforms that can deliver.

Fertilizers

Chemical fertilizers have played an important role in making India self reliant in terms of production of food grains. The history of the Indian fertilizer industry moves back to 1906,

when the first fertilizer factory was opened at Ranipet (Tamil Nadu). Since then, there have been major developments in terms of both the quantity and the types of fertilizers produced, the technologies used and the feedstock's employed. The fertilizer industry in India is in the core sector and second to steel in terms of investment. Fertilizer consumption was less than 1 million tonnes before the mid-1960s. With the introduction of high-yielding variety (HYV) seeds, there was acceleration in the growth of fertilizer consumption. It reached 12.73 million tonnes in 1991/92 as against 0.78 million tonnes in 1965/66. The overall consumption of fertilizers has increased from 70kg per hectare in 1991-92 to 144kg per hectare by 2010-11, the NPK balance particularly, in high fertilizer use areas is seriously distorted. It is apparent that an integrated nutrient management approach is required to enable a balanced use of fertilizers for optimum results- warranting adequate capacity for soil testing required. The handling of increasing quantities of fertilizers will put pressure on storage and handling facilities and transport. Products and practices that improve fertilizer-use efficiency will need special consideration.

Agricultural Credits

Credit is essential to ensure inclusive growth in agriculture. Therefore, offering credit to farmers has become a priority for the government. The NABARD and the Regional Rural Banks ensure adequate credit availability to the farmers. Despite of this the government has focused on improving the flow of credit through a system of Kisan Credit Cards (KCC), introduced in 1998–99. The banking system issued more than 87.8 crore through KCCs, resulting in the sanctioning of Rs. 381,070 crore (US\$ 71.5 billion) until November 2009. Under the 11th plan, consistent progress was witnessed in the formation of Self Help Groups (SHGs). According to the SHG bank linkage programme, 6,121,147 SHGs, with saving bank accounts, had savings of Rs 5,546 crore (US\$ 1 billion) on 31 March 2009, whereas, 5,009,794 SHGs accounted for savings of Rs 3,785 crore (US\$ 709.7 million) on 31 March 2008 (GOI, 2012).

According to the expert group of finance commission even though the Government has introduced all these schemes, in India, only 27 percent of the farmers have access to institutional credit. But there have been some improvements in flow of farm credit in recent years. Agricultural credits have been growing phenomenally during last five years or so, and the interest rate for farmers have also been reduced to 7 percent. Yet the biggest challenge remains in terms of increasing access to credit particularly for the bottom 40%. However, the Government has to be responsive to the some distributional aspects of agricultural credit like, not much improvement in the share of small and marginal farmers; decline in credit-deposit (CD) ratios of rural and semi-urban branches; increase in the share of indirect credit in total agricultural credit and; significant regional inequalities in credit.

Trade in Agricultural Commodity

The globalization of agricultural trade brought to the new opportunities for employment and income generation; productivity gains and increased flow of investments into sustainable agriculture and rural development. Indian agriculture has increasingly been opened to globalization with ratio of agriculture exports and imports as a percent of agricultural GDP rising from 4.9 percent in 1990-91 to 12.7 percent in 2010-11. But so far the enchantment of globalization has not been felt in India. During the past one-decade of liberalization certain trends such as deceleration of the growth rate of agricultural GDP, decrease in yield growth rates, and low non-agricultural employment have emerged against expectations. However, the share of agriculture exports in India's overall exports has been declining from 18.5

percent in 1990-91 to 10.5 percent in 2010-11. Bringing in reforms to streamline domestic markets and expanding the infrastructure and institutions to connect local markets will go a long way in improving India's competitiveness and the benefits from trade liberalization. Therefore it is very important that we do not forget social aspirations for a more just, equitable and sustainable way of life. Trade agreements must be accompanied by operationally effective measures to ease the adjustment process for a small farmer in developing countries.

Public Private Participation in Indian Agriculture

Both public and private participation are needed for agriculture as they are non-substitutable. The private sector involvement in Indian agriculture becomes a recent phenomenon-with new infusion of technologies like BT Cotton, hybrid seed technology. Future breakthrough technologies in agriculture will come increasingly from the private sector. In order to promote private sector participation, the Indian government has allowed 100 per cent foreign direct investment (FDI) in some segments of the agriculture sector. These include fertilizers, agricultural machinery, horticulture, development of seeds, animal husbandry, pisciculture and the cultivation of fruits and vegetables. These private sector investments is greatly benefitted to Indian farmers as a majority of them engage in small scale businesses and struggle to attain profitability. These investments can be used to propagate agricultural R&D, develop technologies for energy saving, and protect the environment, which could help increase yield (GOI, 2012).

Private sector participation in agricultural research, extension and marketing is becoming increasingly important especially with the advent of biotechnology and protection being given to intellectual property. However, private sector participation tends to be limited to profitable crops and enterprises undertaken by resource rich farmers in well endowed regions. Moreover, private sector is not interested in research for better techniques of soil and water management, rain fed agriculture, cropping systems, environmental impact and long term sustainability. Therefore, the public sector research has to increasingly address the problems facing the resource-poor farmers in the less endowed regions. The new agricultural technologies in the horizon are largely biotechnologies. Effective research is needed to have biotechnologies suitable to different locations in India (Dev, 2012).

Marketing and Warehouse Facilities

In the context of food grains policy, concern has been raised about simultaneous occurrence of high food inflation and large food grain stocks in our granaries. It has been argued that in creating a better food grain policy, it is imperative that the entire system of food grains production, procurement, release and distribution is looked at. (Kaushik Basu, 2011) Appropriate changes in the agricultural produce marketing committee acts can boost private sector investment in developing regularized markets, logistics and warehouse receipt systems, future markets and infra structure for imports and exports.

Agriculture remains a sector with complimentary with other sectors. Achievement of food and nutrition security and alleviation of poverty and unemployment on a sustainable basis depend on the efficient and judicious use of natural resources. Inefficient use of these resources would result in reduced fertility, damages to physical, chemical and biological properties of the soil. Government policy needs to act as a catalyst by providing greater investment in R&D, roads and public irrigation. This would enable the economy to bring in a reasonable total factor productivity growth (2 percent) in both the sectors (Agriculture and non-agriculture), expanded irrigation and a caution about relying too much on imports help

to reach the potential double digit growth rate with inclusiveness i.e.; growth process which yields broad based benefits and ensures equality of opportunity for all.

While agriculture's share in India's economy has progressively declined to less than 15 percent due to the high growth rates of the industrial and services sectors, the sector's importance in India's economic and social structure goes well beyond. Because nearly three-quarters of India's families depend on rural incomes and the majority of India's poor (some 770 million people or about 70 percent) are found in rural areas. And also India's food security depends on producing cereal crops, as well as increasing its production of fruits, vegetables and milk to meet the demands of a growing population with rising incomes. Agriculture development is essential to India's overall development and the improved welfare of its rural poor. Therefore a productive, competitive, diversified and sustainable agricultural sector will need to emerge at an accelerated pace. The growth with inclusiveness can be achieved only when agricultural growth accelerates; enhancing agricultural productivity, competitiveness, and rural growth, promoting new technologies and reforming agricultural research and extension, improving Water Resources and Irrigation/Drainage Management, enhancing public sector investment particularly in research and technology transfer along with institutional reforms to make it more accountable towards delivery, conservation of land, water and biological resources, development of rain fed agriculture, development of minor irrigation and water use efficiency, timely and adequate availability of inputs- seeds, fertilizers, pesticides, developing efficient marketing infrastructure and increasing flow of credit particularly to the small and marginal farmers etc., are keys to achieving higher agriculture production.

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