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Presidential address

Innovative policy interventions for transformation of farm sector¹

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I feel privileged to deliver the presidential address in the 26th annual conference of Agricultural Economics Research Association (India). I thank the office bearers and members of the Association for giving me this honour.

I am deviating from the standard practice of delivering a theme-based address built on sophisticated analysis or quantitative rigour and terminology of economics, and, presenting before you some simple propositions to bring long awaited and much needed changes in farm sector.

1 The context

In India, agriculture and allied sectors provide employment to close to half of the workforce and contribute about 17% to the national income. Among the ten major sectors of Indian economy the contribution of agriculture is the highest, both in employment as well as in value added output. Therefore, growth and development of agriculture is significant for transformation of Indian economy and for inclusive development. In other words, agriculture is at the core of achieving the goals of “*Sabka Saath, Sabka Vikaas*” and “*New India 2022*”.

Since the beginning of economic reforms in the early 1990s, agriculture sector has not kept pace with the growth of other sectors of Indian economy. While, non-farm economy witnessed an acceleration in growth rate, agriculture growth continues to fluctuate around long-term average of 3.0% (figure 1) despite the potential for higher growth. Consequently, existing gap between agriculture and non-agriculture income; and per farmer

income and income of a non- farm worker further increased (figure 2). Agricultural prices became highly volatile during this period, sometime falling too low and sometime going very high. This period also

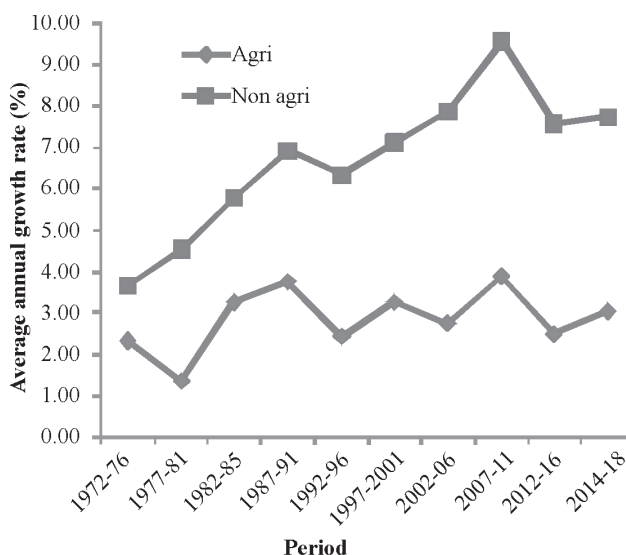


Figure 1. Annual rate of change (%) in GDP from agriculture and non-agriculture, 1971-72 to 2017-18



Figure 2. Ratio of income of a farmer to income of a non-farm worker

¹ Views presented in the paper are personal.

experienced a shift towards commercialization of agriculture – increase in the use of commercial inputs, rise in area under cash crops and market-oriented production, which subjected farmers to high level of market risk. All these factors shifted discourse on agriculture from “development” to “distress” despite the fact that government support for agriculture has kept increasing these years.

It looks like the policy intervention by and large followed the “business as usual” approach devoid of any significant change and innovative ways of supporting agriculture. It is obvious that the situation in agriculture cannot be changed with the “business as usual” approach. There is also a need to ensure that benefits of agricultural growth accrue to farmers. Until 2015, food security and growth in output were the primary goals for agricultural policy. Improvement in farmers’ welfare was not explicitly stated to be the goal of agricultural policy. In February 2016, the Prime Minister Mr. Narendra Modi presented a unique vision for agriculture by proposing the idea of “Doubling of Farmers’ Income by the Year 2022”. This is important not only to improve welfare of farmers but also to sustain interest in farming and providing incentives to raise growth trajectory of agriculture. These changes are not possible without paradigm shift in the approach towards agricultural sector.

I propose some new ideas for public intervention in major areas of agriculture that involve a paradigm shift in policy for the sector. Some of the changes have already been initiated in recent years. In this paper I focus on the following issues:

1. Reforms in agriculture
2. Output price support
3. Input subsidies
4. Development initiatives
5. Corporate investments in agriculture
6. Linking production to processing
7. Promoting producers’ alliances
8. Scaling up success stories of “Innovative Farmers”

2 Reforms in agriculture

Many experts and high-level committees constituted from time to time have held the lack or poor progress of reforms in agriculture as a major obstacle to growth

and modernisation of agriculture, and identified areas covering inputs, technology, production, marketing and post-harvest value addition. During last four years, the central government has come up with a series of reforms to remove restrictive regulations and attract modern capital and organised private sector investments for putting agriculture on a higher growth trajectory and raise farmers’ income.

2.1 Market reforms

India’s agricultural markets and supply chains are suffering from low scale, traditional method of transactions and low mechanisation, resulting in low efficiency, large price spread, poor competitiveness, little value addition, spatial and temporal fragmentation and high wastage in marketing. Agricultural markets have failed to evolve over time. No surprise that consumers complain of high prices and producers suffer from low prices. Modern capital has shied away from entering into agricultural markets and supply chain.

In order to address the situation, the central government came with Model APLM Act (*Model Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act – 2017*) and has been pursuing states to adopt the Model Act, agricultural marketing being a state subject. The central government has also been promoting e-NAM (electronic trading platform for National Agriculture Market) to create a single national market for farm produce. If these two changes are adopted by states, it will bring a lot of benefits to farmers, consumers and economy by upgrading standards of markets, promoting efficiency and replacing traditional supply chains with modern value chains.

2.2 Contract farming

Indian agriculture is dominated by smallholders who suffer from serious scale disadvantage, low risk-taking capacity and poor access to modern technology, capital and market. Contract farming is crucial to promote food processing and to provide technical and financial support and quality inputs to smallholders. There are several success stories where contracts between commercial firm and farmers have led to sharp increase in farmers’ income and transformation of production system. However, there were many hurdles in forging the contract and assuring farmers benefits from this arrangement. The Ministry of Agriculture and Farmers

Welfare, has released “*The State/UT Agricultural Produce and Livestock Contract Farming and Services (Promotion & Facilitation) Act 2018*” to integrate farmers with bulk purchasers including exporters, agro-industries, etc. for better price realization through mitigation of market and price risks and ensuring smooth supply of raw material to agro-industries.

The model APLM Act and Contract Farming Act are the most significant reforms for progress of agriculture. As agricultural marketing is a state subject, the implementation of these Acts and resulting benefit will depend upon their adoption by states.

According to the Central Statistical Organization (CSO), corporate private investment (gross fixed capital formation) constitutes less than 2.5% of the total investment in agriculture. The two reforms mentioned above are expected to pave way for ploughing private sector investment in agriculture.

3 Price support

Output price support and input subsidies are used as important policy instruments to create a stable and remunerative economic environment for agricultural commodities. These become essential when markets are not competitive and production follows large year-on-year fluctuations. India is using procurement as an instrument of price support, and supply of inputs at subsidized rates as an instrument of input support. Both these methods involve heavy cost, leakages and inefficiency. Due to this, only a fraction of total resources spent by the government reaches to the ultimate beneficiaries. These interventions also involve distortion of prices and affect functioning of markets. Due to these limitations, many countries have moved to the mode of direct benefit payment to the targeted population.

3.1 Minimum support prices

India developed the system of MSP (Minimum Support Price) in 1965 mainly to address the serious shortages of staple foods. Initially, MSP was announced for paddy and wheat and subsequently was expanded to 24 crops including all major cereals, pulses and oilseeds and cotton and jute. Historically, MSP has been implemented very effectively for paddy, wheat and cotton through the system of procurement by official agencies. During recent years, procurement operations have been expanded to pulses, oilseeds and coarse grains. It has been learnt from the experience that use of procurement to implement MSP turns out to be very costly as procurement agencies incur heavy cost in procurement, handling, movement and storage (table 1). Disposal of procured quantity is also a serious problem and often involves further losses. Cost incurred by Food Corporation of India (FCI) and National Agricultural Marketing Federation (NAFED), two major parastatals, in procurement of food, in recent years are indicated in table 1.

FCI incurred 25-30% of the price paid to farmers as cost of procurement incidentals and 20- 25% as distribution cost. The total comes to around 50% of the cost price of FCI. On per quintal basis, FCI incurred a cost of Rs.730 to pay MSP of Rs. 1467 in year 2015-16. Similarly, NAFED incurred 19.5% cost in case of pulses and 25.34% cost in case of oilseeds procurement as carry over and administrative charges. This does not include losses incurred in sale of produce below the price at which it was procured.

An alternative option is to make direct payment to farmers to compensate for the deficiency in price received by them as compared to MSP. This requires information on quantity produced and sold by each

Table 1. Cost incurred in procurement and distribution of selected commodities by public agencies

Agency	Years	Commodity	Procurement incidental as % of cost price	Distribution cost as % of cost price
FCI	2015-16	Wheat	26.1	25.2
	2016-17	Wheat	25.0	24.7
	2015-16	Rice	30.8	25.1
	2016-17	Rice	28.8	20.8
NAFED	2017-18	Pulses	7.5	12.0
	2017-18	Oilseeds	10.5	14.8

farmer and price at which produce was sold. To overcome such requirements, it is suggested to compensate farmers in each district on per acre basis by using district level estimate of marketable surplus and prices in the harvest season. This is doable as the prices are reported on daily basis for 3084 markets in the country. This will take care of productivity variations as well as price variations across mandis. States/district where government procure produce for PDS, market price will be at MSP and there will be no deficiency in the price. The alternative method “Area Based Income Compensation (ABIC) is illustrated in table 2 for Belgaum district of Karnataka. The table presents the difference between the receipt by farmers at market price and at MSP for various crops.

If the farmers in Belgaum district had sold their produce at MSP they would have received Rs. 176 crore more than what they received at actual market prices. This amount should be distributed to farmers as income compensation for price loss at the rate of Rs. 1670 per acre. If the MSP for this district was implemented using procurement, the cost turns much higher than the cost of ABIC. Further, it does not include losses that would be incurred in disposing off the produce. ABIC also allows free play of market forces and will not cause adverse effect on export.

International experience at price support also indicates shift to direct price compensation approach from procurement backed system of paying higher prices to farmers. China’s experience in this area is particularly instructive and revealing. China introduced systems of “minimum support price procurement program” targeting staple foods of rice and wheat and non-staples like corn and soybean. This was done in the wake of high global prices to incentivise domestic producers to raise production. During 2007-2014, the support price for Japonica rice jumped up as much as by 106.7%, of wheat by 71.0% up, and of corn by 60.0%. This production-encouraging policy brought about a reversal of prices, and the prices of domestically produced grains were almost constantly exceeding those of imported ones in the market for the first time in the modern history of China. Since the government’s support price for corn producers came to constantly exceed the market price in fiscal 2012, farmers began to sell most of their products to governmental agencies at a profitable level of the support price. Purchases by the government at the support price increased from 30 million tons in 2012 to 83 million tons in 2015. Stockpile of corn with government increased from 40 million tons to over 200 million tons between 2007 and 2016. Higher prices in China led to increase in import of corn from a few tons till 2011 to 42 million

Table 2. Difference in gross returns from major crops at Agmarket price and at MSP in Belgaum district, 2017-18

Crop	Output (tons)	Marketed surplus (tons)	Agmarket price (Rs./qtl)	MSP=1.5* (A2+FL)	Price deficiency (%)	Value of produce at Agmarket price (Rs. crore)	Value of produce at MSP (Rs. crore)	Increase in farm receipt due to MSP (Rs. crore)
Arhar	1700	1500	4355	5450	20.09	6.53	8.18	1.64
Moong	3800	3445	4897	6429	23.83	16.87	22.15	5.28
Urd	1300	1112	5367	5400	0.61	5.97	6.00	0.04
Groundnut	39200	35919	5147	4739	-8.61	184.88	170.22	0.00
Sunflower	7100	6329	2760	5222	47.15	17.47	33.05	15.58
Soybean	49200	34932	2629	3182	17.38	91.84	111.15	19.32
Maize	496200	436954	1264	1566	19.28	552.31	684.27	131.96
Jowar	123500	82300	2352	2334	-0.77	193.57	192.09	0.00
Bajra	8200	5610	1000	1425	29.82	5.61	7.99	2.38
Ragi	1100	524	2343	2792	16.08	1.23	1.46	0.24
Sesamum	100	94	5573	6101	8.65	0.52	0.57	0.05
Total						1076.79	1237.14	176.49

tons by 2015. Chinese authorities found it difficult to continue the price support policy for corn in effective manners and transformed the policy into a direct payment program, named as the “producer compensation system” in 2016. In the first year, the shift from procurement to compensation system showed significant effect – domestic prices declined and turned lower than the import price, thus reducing import and excess production². India’s situation after introducing the new MSP is exactly same as the situation of corn in China during 2007 to 2015. To avoid the problem that China faced with MSP procurement program, India should better follow direct payment to producers through mechanisms as ABIC.

4 Input subsidies

Input subsidies are meant to promote the use of inputs and practices to get higher productivity and production, to contribute positively to farmers’ income and to promote sustainable use of natural resources. Although subsidies have played a significant role in raising agriculture output and farmers’ income, it is believed that subsidies are not being used in an equitable and efficient manner, and in some cases these have adverse effect on natural resources and long-term sustainability of agriculture. There are also reports of excessive and indiscriminate use of some inputs and water and misuse of subsidies for non-targeted purposes. Therefore, ways and means are being discussed to pay subsidies directly into the bank accounts of farmers through the direct benefit transfer (DBT) route rather than supplying inputs at subsidised prices. Suggestions also include

merging all types of subsidies into one pack and distributing the total subsidy amount to farmers on per acre basis. This requires precise estimate of various subsidies being given by the central and state governments and proper understanding of the nature of subsidies.

The government extended financial support of Rs. 2.05 lakh crores as input subsidy to agriculture during biennium ending (BE) 2015-16, (table 3). In terms of per hectare of net sown area, the input subsidy amounts to Rs. 14659 and accounts for 18.8% share in the agricultural cost. Power and fertilizer are two major constituents of input subsidy with respective shares of 42% and 35% during BE 2015-16. The subsidy towards interest subvention of short-term credit to agriculture was 4.6% of the agricultural subsidy during BE 2015-16.

4.1 Alternative mechanism of subsidy distribution

Major argument against uniform area-based input subsidies is that those who use higher quantity of input avail higher subsidy and also produce more output per unit of area. Ignoring productivity differential will imply that low productivity farms get much higher support as proportion of value of output as compared to the farms having high productivity. The model discussed below takes care of such situations. It suggests payment of subsidy in proportion to aggregate crop productivity using district as a unit. Total subsidy for the sector should be divided in two categories viz., for irrigated area and unirrigated area in proportion to

Table 3. Level and composition of input subsidies in Indian agriculture during BE 2015-16

Inputs	Level of input subsidy		Composition of input subsidy (%)
	Total (000 crores)	Per hectare of net sown area (Rs./ha)	
Power*	86.8	6173	42.1
Fertilizer	71.9	5134	35.0
Interest subvention	9.5	678	4.6
Others	37.5	2674	18.2
Total	205.4	14659	100

Notes: * Power subsidy for agriculture sector has been estimated as a gap between revenue realized from agriculture consumer and cost of power supply incurred to power distribution utilities.

² Ruan Wei (2017). China’s corn policy shifting into producer compensation system from price support to direct payment, Research Report, Norinchukin Research Institute Co., Ltd. Available at: https://www.nochuri.co.jp/english/pdf/rpt_20171121.pdf. Accessed on 3.8.2018.

their share in crop output. Total subsidy should then be allocated over districts based on the contribution of each district to national output of crop sector as estimated by CSO. District level subsidy should be distributed over irrigated and unirrigated acreage in proportion to their share in output. These coefficients would ensure that subsidy is linked to productivity under varying agro-ecosystem. The distribution should be revised every 5 years to factor in changes in productivity over time.

The amount of subsidy should be credited to the bank accounts of farmers during *kharif* and *rabi* season through DBT, based on the cultivated area and its status as irrigated or unirrigated. Further, area-based subsidy should be decided on the land records maintained by the revenue departments. Revenue department will be required to submit complete land records of all landowners showing land under cultivation and its status as irrigated or unirrigated in the previous year, to the office given the responsibility for disbursement of subsidy.

It is often said that direct transfer of subsidy based on land titles will exclude tenant farmers who do not have legal documents of tenancy unless some alternate mechanism is developed to entitle them. However, there is every possibility of subsidy payment to landowners getting adjusted in the terms and conditions of rent.

5 New development initiatives

Several development initiatives have been launched for agriculture and allied sector during the last four years. Two initiatives where new approaches have been adopted are:

- Pradhan Mantra Krishi Sinchai Yojana (PMKSY)
- Pradhan Mantra Fasal Bima Yojana (PMFBY)

5.1 PMKSY

Irrigation has been accorded high priority since the first Five Year Plan to reduce the dependence of agriculture on vagaries of monsoon and to raise productivity of agriculture. Initially, the emphasis was on major and medium irrigation and surface irrigation development through public investments. With the onset of green revolution, lot of private investments went into development of groundwater irrigation through tube-wells. Despite this, half of the cultivated area does not

have access to irrigation and suffers from low productivity and high production risk.

An important reason for slow growth of irrigation has been that the investments made in major and medium irrigation did not bring commensurate increase in area under irrigation; hence widening of the gap between irrigation potential created and utilised. Every year resources worth thousands of crores of rupees are spent on development of medium and major irrigation projects, but since 1991-92 area under irrigation first stagnated and then declined at all India level (figure 3). The decline has been quite high in some states. It is pertinent to mention that during this period (1992 to 2014) an amount of Rs. 17663 crore was spent per year on medium and major irrigation. Major reason for the investments in medium and major irrigation not leading to increase in area under canal irrigation has been that irrigation potential created could not be converted to utilisation.

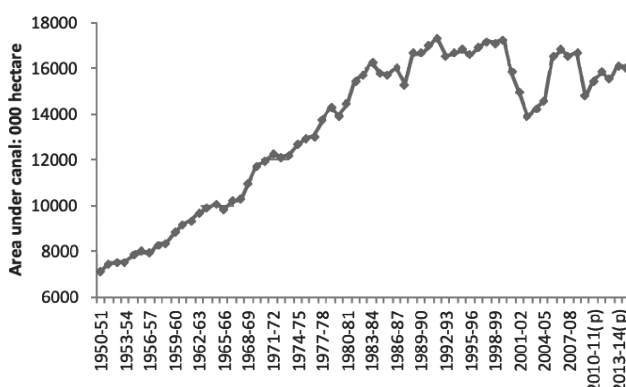


Figure 3. Net area under public canal irrigation, 1951 to 2014

Future development of irrigation requires addressing this challenge. The other major challenge in expanding area under irrigation is the sustainable and efficient use of water. PMKSY has been designed to address these challenges so that investments made in public irrigation projects lead to desired increase in area under irrigation, water is used efficiently and each field is provided some access to water.

“Pradhan Mantri Krishi Sinchai Yojana” is designed to address above challenges and to achieve goals of assured or protective irrigation to entire area under cultivation through a new approach to irrigation. It is being implemented in mission mode with four

components namely, (i) Accelerated Irrigation Benefit Programme (AIBP); (ii) *Har Khet ko Pani* (iii) Per Drop More Crop, and (iv) Watershed Development.

The AIBP component focuses on faster completion of ongoing major and medium irrigation projects. The NITI Aayog has prioritised 99 projects for a speedy completion within a period of 2 to 3 years. These are expected to provide additional irrigation coverage over 76 lakh hectares. These projects are further prioritised in three categories for their completion in a phased manner. These include 23 early bird projects where small investments and last mile connectivity will lead to fruition of delayed outcomes. Similarly, all the projects under AIBP include Command Area Development works to ensure that endemic problem of irrigation potential created remaining unutilised does not come in the way of utilising the full potential.

“Per drop more crop” component aims at increasing farm water-use efficiency by adoption of water application devices like drip, sprinkler, pivot and rain guns in irrigation. The programme component, ‘*Har Khet Ko Pani*’ covers Command Area Development and Water Management (CAD&WM); Minor Irrigation (both surface and ground water); and Repair, Renovation and Restoration (RRR) of water bodies. Under watershed development, priority is accorded to rainwater harvesting; effective management of the run-off water; prevention of soil erosion; regeneration of natural vegetation; and re-charging of the ground water table.

The strategy adopted under PMKSY focuses on faster completion of the on-going projects, which involved huge investments with considerable time overrun while other components aim at addressing the issue of early coverage of more and more area under assured irrigation or protective irrigation, and to make efficient use of precious water resources.

5.2 Crop Insurance

Agriculture is vulnerable to extreme climatic events like floods, droughts, hailstorms, cyclones, high speed winds, heat waves and frosts. These events are becoming frequent and intense and in some parts of the country occur almost on a regular basis. With shifts in acreages towards cash crop the need for mechanism for safeguarding farmers against production risk is becoming more pressing.

Government of India started crop insurance scheme first time on a limited scale in 1972-73 and a pilot crop insurance scheme in year 1979 as a mechanism for providing protection against decline in crop yield from a threshold level. Because of its several limitations and complexities, the crop insurance mechanism was modified from time to time. Based on the experience gained during the past 40 years the Government of India adopted a comprehensive crop insurance scheme called “*Pradhan Mantri Fasal Bima Yojana*” from the kharif season of 2016-17. It involves public as well as private companies in providing crop insurance. This is a commercial model of crop insurance which is highly subsidised and in equal proportion by the centre and states.

The first two years of implementation of PMFBY have been normal from the rainfall point of view and from the point of view of production at national level, although some states faced serious calamities. Therefore, PMFBY has not yet faced the tough test of providing compensation to farmers in the wake of below normal production at national level. However, there are some useful lessons from the implementation of PMFBY in the past two years.

Like any other commercial model of crop insurance, PMFBY has faced certain problems. It is costly and has to be heavily subsidised. The coverage and farmers’ satisfaction levels are low. Pay-out of claims are highly conservative and slow. More than 80% of premium is paid by the centre and states. Admissible claims have remained below two-third of premium, and thus more than one-third of the premium is retained by the insurance companies. Even with 80% subsidy, crop insurance covers around one-fourth of the gross cropped area in the country. During the year 2017-18, the centre and states contributed Rs. 20390 crore towards premium for crop insurance on 49 million hectares. This amounts to a premium subsidy of Rs. 4161 per hectare.

It is high time to take a pragmatic view of crop insurance and put in place a mechanism which can satisfy farmers and provide needed assistance to counter adverse effect of yield loss and acreage reduction at farm level.

5.2.1 Welfare model of insurance as an alternative

The core of principle of commercial model of insurance is to collect premium from a large number of persons

to be paid to a few affected by a specific calamity. There is an alternative model which is termed as 'welfare model of insurance' in which the state takes responsibility for agriculture insurance. Under this model, there is no need to collect premium from a large number of farmers to pay to a few affected by any calamity in a given period. Under the welfare model, every piece of land under cultivation is deemed to have been insured by the state. Farmers are asked to pay nominal amount and register themselves at a the central portal to get the benefit of the insurance. The model involves setting up of central agencies "National Agricultural Insurance Management Agency (NAIMA) on the lines of NDMA (National Disaster Management Authority). This agency should have technical manpower and expertise for assessment of crop loss and should be fully trained in loss assessment like surveyors of insurance companies. Such persons should also be posted in smaller numbers at regional/state level. States should be asked to report crop loss at village level through a well-established monitoring and reporting system. A team of NAIMA drawn from various states should rush to the affected state and undertake assessment of the loss promptly. States should also be asked to set up their own state level agency SAIMA (State Agricultural Insurance Management Agency). As natural calamities are area-specific, manpower available at national level and in other states can be utilized for loss assessment in the affected areas or regions.

One can make use of latest advances in crop loss assessment technology (i.e. use of satellite imagery; drones; automatic weather stations, etc.) to fine tune the process of assessment of crop loss. By this method, the time lag between crop damage and payment of compensation can be reduced to a few weeks (instead of almost one year at present) and enable the farmers to face the next crop season with hope and confidence. Loss assessment by public agency is also expected to be objective and free from bias. This is also the most effective way to reach out to all farm households. This type of model is expected to be much more cost effective and efficient than commercial model operated by insurance companies.

6 Corporate investments in agriculture

Indian agriculture is characterised by poor state of science and technology in production, inefficient and

exploitative markets for farm produce, and unviable low scale of production. Our agricultural production systems are decades behind many other sectors in adopting technology innovations. Low yielding crop varieties and traditional practices still dominate. Age old methods of farming like flood irrigation, broadcasting fertiliser, indiscriminate use of agro-chemicals are in vogue leading to low efficiency, high cost and low-quality produce besides adverse implications for sustainability. Second, marketing is characterised by large price spreads with depressed prices in harvest period and high prices in lean period. In a short period, price crash for the same commodity is often followed by price spike. Despite progress in transport and communication networks, markets for farm produce show poor integration. With the rise in commercialisation of agriculture the incidences of farmers forced to sell at throwaway prices, and consumers forced to pay above normal prices are becoming frequent. Third, half of the farm households operate on less than 1 acre of cultivated land. In states like Uttar Pradesh, West Bengal and Bihar 80 to 92% of the land holdings are of marginal category. Scale disadvantage and low bargaining power of owners of such tiny landholdings make them unviable despite their much higher productivity per unit of land compared to the medium and large farmers.

Private sector can play an important role in addressing these challenges. However, they need to look at agriculture beyond market for their inputs and link innovation with supply of inputs. In a few cases where corporates are taking innovation to farmers with inputs, wonderful results have been achieved. One such case is banana revolution in Jalgaon district of Maharashtra where farmers are using tissue cultured banana saplings supplied by a private tissue culture lab for disease free banana cultivation and getting much higher yield of better quality. The same technology is now being advanced to other states and to other fruits. If this experience is replicated to other fruits and vegetables India can become a global hub for horticulture production. Similarly, supply of seed treated with suitable inoculum and rhizobium can protect seed and plants against diseases and result in better growth. Many private enterprises are now promoting protected agriculture and precision farming which generate more income for farmers.

The other major challenge in agriculture relates to inefficient, fragmented, traditional and often unfair

system of marketing thriving under the protection of regulation. Market regulations like APMC (Agriculture Produce Market Committee Act) and ECA (Essential Commodities Act) favour small sized, traditional traders and middle men and inhibits entry of modern capital into the system which can bring innovative methods, competition, e-commerce, investments and integration of value chain. A few cases where corporate players have entered into marketing, farmers received large benefits like procurement of apple in Himachal Pradesh, maize in North Bihar and banana and potato in Gujarat.

Private sector can improve viability and income of smallholders in many ways. One, through supply of services, as owning machines and equipment are uneconomical for smallholders and are also beyond their capacity to buy these. Last few years have seen some growth in number of private sector service providers, particularly for farm machinery rental service. Besides reducing cost, the modern and sophisticated machines improve efficiency. Some services providers have started even using mobile “apps”. A large number of farmers are now using laser guided land levelling technology on rental basis which brings benefits in terms of saving in irrigation water, reduction in irrigation cost and time, and increase in yield. Second, the private sector has huge scope to raise income of smallholders through contract farming. Smallholders have a great advantage in terms of labour and supervision, much needed for quality, traits, and timely supply of farm produce. If private players as modern retailers, processors, traders or corporates provide quality seed and plant material, technical advice, financial support and assured price it can lead to win-win situation for farmers and firms. There are success stories of contract farming in almost all the regions of the county, but coverage and penetration remain small.

During recent years Start-ups have shown lot of interest in agriculture and they are riding on state-of-the-art technology and modern value chains. Some of these start-ups are led by highly motivated well qualified entrepreneurs who aspire to change the face of agriculture. This is also putting pressure on traditional agri-business corporates to rethink their strategy of sale of inputs to become partner with farmers. Promising Start-ups in agriculture should be given required policy support.

In 2016-17, private corporate investment accounted for only 2.3% of the total investment in agriculture, public sector investment 18.6% and farmers’ own investment (termed as private investment in CSO parlance) the remaining 79.1%. Out of their total investments in Indian economy the private corporate sector invested 0.43% in agriculture and allied sectors. These figures show awfully low investments by private corporations in agriculture. This should be at least doubled to help achieve the goal of doubling farmers’ income.

Indian agriculture requires active involvement of private sector right from seed to post-harvest value addition, to move to next stage of development. Therefore, there is a need to attract and facilitate private sector involvement in agriculture.

7 Linking production to processing

Experience of various developed countries show that as an economy grows and moves from agrarian to industrial economy the consumer preferences and economic activities shift from primary production to value addition and processing. The shift in consumer preferences towards processed and value added products is evident in India also. However, this shift has been very slow in terms of growth of processed food sector. This can be seen from the output of food sector vis-a-vis output of food and beverage manufacturing. Due to very slow growth in food processing sector the consumer demand is being met from imported products. This also has very serious implications for growth in jobs in the country. The government has been emphasising growth of food processing sector and offering various incentives to attract investments in this sector. However, the growth of value added in manufacturing in food and beverage remains awfully low, just 1% as compared to 8% in total manufacturing sector during 2012-13 to 2016-17. In a growing economy the food manufacturing is expected to have much higher growth compared to the growth in production of raw food. But this is not happening.

Government of India has offered various incentives to attract investments in food processing sector. The recent initiatives include a new Central Sector Scheme – Pradhan Mantri Kisan SAMPADA Yojana (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters) with an allocation of Rs. 6,000

crore for the period 2016-20. It covers (i) Mega Food Parks, (ii) Integrated Cold Chain and Value Addition Infrastructure, (iii) Creation/ Expansion of Food Processing/ Preservation Capacities (Unit Scheme), (iv) Infrastructure for Agro-processing Clusters, (v) Creation of Backward and Forward Linkages, (vi) Food Safety and Quality Assurance Infrastructure, and (vii) Human Resources and Institutions. The scheme envisages assistance of around 50% of capital cost subject to a ceiling. The Kisan SAMPADA Yojana is expected to leverage investment of Rs. 31,400 crore for handling of 33 million tons of agro-produce valued at Rs. 1,04,125 crore, benefiting 2 million farmers besides generating direct and indirect employment for 5,30,500 people by 2019-20.

A major deterrent for investments in food processing is assured supply of specified quality/grade raw material from farmers.

8 Promoting producers' organizations

In order to enable smallholders to overcome constraints of low scale, poor bargaining strength, low risk-taking ability and reach to market, provisions have been created in law to facilitate formation of Farmers Producers Companies (FPC) to undertake agribusiness activities like other business entities. At the level of central government, SFAC (Small Farmers Agribusiness Consortium) and NABARD (National Bank for Agriculture and Rural Development) are promoting Farmers Producers Organizations (FPO). Latest data shows that SFAC promoted 769 FPOs with membership of about 7.48 lakh farmers and NABARD promoted 2154 FPOs until March 2018. According to NABARD 5000 FPOs are in existence in the country at present of which 3200 are FPCs.³

These FPOs are benefiting their members through bulk input procurement and distribution, aggregation and marketing of output, agro-processing. These help their

members undertaking high paying activities like fruits and vegetables, dairying, organic farming and seed production. Some success stories of FPOs documented by SFAC (available at: <http://sfacindia.com/FPOSuccessStory.aspx>) provide convincing evidence of substantial increase in income of smallholders through FPOs. However, the penetration of FPOs in the country is quite low with miniscule coverage of farmers. An important hurdle in expansion of FPOs is provision of credit to them by financial institutions. As FPOs shows lot of promise for raising income of smallholders these should be given strong support and attention.

9 Scaling up success stories of “innovative farmers”

The central and state governments are actively undertaking a large number of initiatives to address developmental needs of agricultural sector. This can be termed as “development approach” towards achieving the goals of agricultural sector. This process is time taking and resource intensive. On the other hand, a lot of anecdotal evidence and media stories claim that there are some innovative farmers in various parts of the country who are like “shining stars” in the locality. There are reports of some individual farmers multiplying their incomes by using some grassroot innovations, sometime in combination with modern technology and marketing innovations. This can be termed as “innovation route” to transform farm sector. This also seems to be the easier and effective approach to achieve the goal of doubling farmers' income, as, such farmers are already having more than double the average incomes of their locale. However, such success stories do not spread on their own. Development agencies should be asked to demonstrate such innovative models throughout the country for their replication. This idea deserves serious consideration for achieving quick results like doubling of farmers' income.

³ NABARD (undated). Farmer Producers' Organizations (FPOs): Status, Issues & Suggested Policy Reform, National paper PLP 2019-20, available at: <https://www.nabard.org/auth/writereaddata/CareerNotices/2708183505Paper%20on%20FPOs%20-%20Status%20&%20%20Issues.pdf> accessed on 6.11.2018.