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Starting from Pandit Nehru's exhortation soon after independence that 'everything else can wait, but not agriculture', agricultural growth has all along been central to India's efforts at poverty reduction. We have come a long way from the chronic food shortages and occasional famines of the immediate post-independence years; even as the population has increased, we have been able to maintain food self-sufficiency through both extensive agriculture and productivity improvement. But in recent years, there has been growing concern about the erosion at the margins of food self-sufficiency. A big challenge for sustaining food self-sufficiency is raising production which, given that available land is fixed if not diminishing, has to come from improved productivity. A host of cash and non-cash inputs is necessary to improve productivity, and an important one is agricultural credit.

- Single most important livelihood in India. Pre-requisite for inclusive growth, reduction of poverty, development of rural economy. Also source for domestic demand for goods and services.
- Share in real GDP of agriculture, including allied activities:
 - 2010-11- 14.5% (2004-05 prices) [12.3% agri, 1.4% forestry and logging, 0.7% fishing]
 - 1950-51 - 56.5%
- Workforce participation:
 - 1961 - 75.9%
 - 1981 - 69%
 - 2011 - 52%
- Growth rate in agriculture:
 - 2007-11 - 3.5% against 4% target (7% in 2010-11)
- As a percentage of GCF in agriculture to GDP:
 - 2010-11: 20%
 - 2004-05: 13.5%
 - Positive trend
 - Percentage of GCF in overall GCF - 7.5% (fluctuating over the years)
- Food grain production
 - 1951-52 - 52 MT
 - 2010-11 - 244 MT
 - During 1960-2011, foodgrain production increased by 2% a year
- The increasing divergence between the growth trends of the total economy and that of agriculture & allied sectors suggests an under performance by agriculture
- Wide variation in performance of various states. In the recent times, poor performing states like Orissa, Chhattisgarh and Himachal Pradesh having shown stronger growth in agriculture.

Importance of agriculture

- (i) supplier of food to the industrial sector and non-subsistence sector
- (ii) provider of raw materials to the agro-based industries
- (iii) generator of agriculture income that generates demand for industrial goods.

Land Reforms

- Land is a state subject
- Great scarcity and uneven distribution of land
- Focus of agricultural policies in the initial years was on institutional changes through land reforms
- Two objectives of land reforms in India
 - To remove the impediments to agriculture that arise due to the character of agrarian structure in rural areas (**enhance agri growth**)
 - To reduce or eliminate the exploitation of tenants/small farmers and thus reduce rural poverty and income inequality (**social dimension**)
- Economic arguments for land reforms
 - Equity

- Empirically, it has been shown that small farms tend to be more productive than large farms
- Owner cultivated plots of land tend to be more productive than those under sharecropped tenancy
- Given these observations, one could make an argument in favour of land reform based not only on equity considerations, but also on efficiency considerations.
- Five main areas of land reforms in India
 - Abolition of intermediaries (zamindars)
 - Tenancy reforms
 - Land ceilings
 - Consolidation of disparate land holdings
 - Cooperative farming
- Results
 - Abolition of zamindari was successful while the other areas of land reforms met with limited success. 25m erstwhile tenants brought into direct relationship with state.
 - Tenancy reforms: tenants acquired rights in only about 4% of operated area. Resorting to legal means was difficult. High levels of informal tenancy. In some cases, tenants were evicted from the land. Tenancy pushed underground.
 - Absentee landlordism declined
 - Land ceiling – led to redistribution of less than 2% of operated area. Benami transactions, provision of holding land twice if more than five members was misused, misuse of exemptions and mis-classification of land
 - There has been a general tendency of increase in the share of households and the area cultivated by small-marginal farmers, along with phenomenal increase in number of nearly landless farmers
 - Eventually, land reforms led to high levels of litigation
- Overall,
 - lack of political will and capability within the bureaucracy
 - The dominant rural groups such as Zamindars of Bihar, large cultivators in Karnataka and capitalist farmers in Punjab exerted decisive influence on the processes of formulation and implementation of land reforms to divert the benefits of the reforms from poor to themselves.
 - Considerable time and energy was spent in improving the legislative and implementation aspects of land reforms. However, these didn't seem to be a part of any cohesive development strategy
 - absence of up-to-date land records
- Operation Barga in WB – If tenants registered with the Government, they would be entitled to permanent and inheritable tenure on the land they sharecropped as long as they paid 25% of output as rent to the landlord. Also, land reforms in Kerala also saw similar success
- The National Commission on Farmers has placed the unfinished agenda in land reform first in its list of five factors central to overcome an agrarian crisis
- Way forward
 - Land reforms that make tenancy legal and give well defined rights to tenants, including women, are now necessary
 - Emphasis on land reform to foster agricultural growth and augmenting employment
 - Computerisation of land records
 - Follow command area approach and the area based contract farming.

Technology and Green Revolution

- Given growth of industrial sector has long gestation period, new dev. strategy in India put a lot of pressure on agri. From mid 1950s – relied on agri imports. 1956 – PL480 (aid in the form of wheat)
- While land reforms brought very limited redistribution of land, the introduction of new technology led to significant gains to farmers, along with making the country self sufficient in food.
- In the early 60s India faced several crises
 - It had to fight two wars: Pakistan and China
 - Severe drought in 1965 and 1966
 - US was using PL-480 food supply as a means to twist India's arms to meet US interests
- This called for an overhaul of the agricultural strategy and the need to be self-sufficient in food production
- Three phases of green revolution
 - 1966-1972
 - 1973-1980
 - 1981-1990
- 1966-1972
 - C Subramaniam and MS Swaminathan – New agriculture strategy adopted
 - 1965: Agricultural Prices Commission (to set prices) and Food Corporation of India (to procure major agri product) set up
 - Introduction of HYV seed of wheat from Mexico created by CIMMYT through Dr. Norman Borlaug, father of the Green Revolution through initially Integrated Agricultural Development Programme (IADP) and later HYVP
 - Under the new agricultural policy, the spread of HYVs was supported by public investments in fertilisers, power, irrigation and credit
 - Food grain production shot up
 - 1966-67: 74 mt
 - 1971-72: 105 mt
 - India became nearly self-sufficient in food grains
 - What led to the increased production?
 - Increased yield per hectare due to better seeds
 - Favourable pricing policy led to adequate incentives
 - National research system proceeded to indigenise the new seeds to tackle their shortcomings
 - Availability of inputs including canal water, fertilisers, power and credit
 - Subsidies – started in 1960s, became important in 1970s
 - Role of credit began to be important after 1969 – nationalization of banks.
 - Rural poverty declined from 64% in 1967 to 56% in 1973.
- 1973-1980
 - This phase saw many challenges
 - Consecutive droughts in 1972-73 - Production fell. Imports began again.
 - Oil shock
 - Total subsidy bill increased from 0.5% (1973) to 4% (1980) of agri GDP – fertilizer, power subsidy increased
 - 1977 – retention price scheme introduced for urea. The scheme intended to provide fertilisers at a cheaper rate to the farmers and provide a 'reasonable'

return on investment for the fertiliser producers, which would boost investment in the industry.

- Groundwater irrigation increased in importance – pvt investment through earned income in previous period
- HYV technology extended from wheat to rice. Over 1973-80, production of foodgrains increased and rural poverty fell from 56% to 50%.
- 1981-1990
 - 1986
 - Rice prod: 63.8 mt (1964: 37) i.e. doubled as compared to 1964
 - Wheat prod: 47 mt (1964: 12 mt) i.e. tripled as compared to 1964
 - Even when the 'worst drought of the century' struck in 1987, food needs could be adequately met due to buffer stocks
 - HYV technology spread eastward to states like West Bengal and Bihar
 - The impact of HYV technology had started to plateau however
 - Input subsidies kept on increasing
 - 1991: Input subsidy was 7.2 pc of agricultural GDP
- 1991 onward (RBI study)
 - Liberalisation could improve terms of trade for agriculture which earlier was in favour of manufacturing sector on account of over-valued currency and artificial protection to the industrial sector. In addition, joining WTO was considered to be doubly beneficiary since it would emphasis liberalization of industry sector, improving terms of trade for agriculture
 - Price factors: The terms of trade show only a modest improvement but are decidedly more favourable to agriculture after the reforms than before. The role of import liberalisation in determining this price movement appears to be marginal too, except perhaps for some crops in some periods
 - Non-price factors appear to be impacting agriculture adversely. These include:
 - A persistent trend in Indian agriculture is the shrinking farm size. This is a long-term trend and unless addressed can have permanent adverse consequences for the sector, impinging upon its prospects. This may well be one of the factors that underlie the much reported finding from the National Sample Survey that close to 40% of Indian farmers report that farming are not profitable. **Small farm size impacts risk-taking ability of the farmer, along with reducing access to credit**
 - Public investment (discussed below)
 - slow expansion of irrigation in nineties on account of improper governance structure leading to inefficiency in use of water. This is despite increase in fund allocation for irrigation facilities emphasizing low correlation between expansion in area irrigated and expenditure on the same
- Bringing Green Revolution to Eastern Region of the country: This scheme was started in 2010-11 with an allocation of Rs. 400 crores, with the objective of increasing crop productivity through promotion of recommended agricultural technologies and package of practices in Assam, Bihar, Chhattisgarh, Jharkhand, Odisha, Eastern UP and West Bengal. Focused efforts with scientific back-stopping led to record production of 55.3 million tonnes of rice in implementing states during 2011-12 against 47 million tonnes in 2010-11. The allocation for the programme during 2012-13 has been increased to Rs. 1000 crore.
- Weakness of GR:

- While new seeds were '**scale neutral**', the programmes IADP and HYVP required heavy investment in seeds, fertilisers, pesticides and water – beyond the capacity of small and medium scale farmers.
- Only 6% of big farmers account for 40% of the cultivated area.
- Wide regional disparity – Punjab, Haryana and Western UP benefitted.
- Due to tenancy arrangements and increased sharecropping, excess level of fertilisers used impacting quality of soil.
- Didn't benefit dryland farming.
- Didn't cover coarse cereals and pulses.
- highly regulated policies on agriculture-
 - There were barriers on pricing, movement and private trading of agricultural produce
 - The external sector was burdened with various tariff and non-tariff barriers to agricultural trade flows
 - The overvalued rupee produced an anti-export environment for agriculture
 - High protection to industry produced high industrial prices and adverse terms of trade for agriculture, reducing the relative profitability of the primary sector
- What was the aim of agricultural pricing in pre-reform era?
 - Ensure inexpensive food for consumers
 - Protect farmers' incomes from price fluctuations
 - Keep the balance of payments in check
- Agriculture in post-reform era
 - Impact: 1. Growth in PCI led to an increase in food demand and also diversification into non-food grain crops such as fruits and vegetables, meat, dairy products. 2. Terms of trade between agricultural and industrial prices improved in favour of agriculture, exchange rate depreciation also helped.
 - Increased profitability has led to increase in private investments which are now double the public investment in agriculture. Pvt investment directed to horticulture produce
 - Growth rates
 - 1980s: 3 pc
 - 1991-96: 4%
 - 2000s:
 - Tenth Plan: 2.47 pc (as against 7.77 pc of overall economic growth)
 - This has however not translated into reduction of poverty – fiscal contraction, focus on other sectors
 - There has been an increase in both urban and rural inequality
- Deceleration in agricultural growth
 - Declined during 90s – yield growth nearly halved. It is said that this is because of decline in public investment in agriculture.
 - Deceleration in the growth of area, production and yield
 - Food production of Rabi crops has off late equalled the Kharif crops. This has to an extent reduced the over dependence on monsoon and imparted some stability to agricultural production
 - Area-wise, the deceleration was more in case of the Indo-Gangetic region
- The instability in agricultural growth is more in states with high percentage of rain-fed areas
- Acreage: declining trend in most crops during the period 1995-96 to 2004-05
- Productivity: sharp decline (1995-2005). Healthy performance of cotton and maize though on account of Bt cotton seeds and hybrid maize seeds

- During 2000-11, there has been no growth in yield levels for wheat which suggests renewed research is required to boost production and productivity.
- By 2011-12, almost 90 percent of cotton area is covered under Bt. cotton, production has more than doubled (compared to 2002-03), yields have gone up by almost 70 percent, and creating huge export potential
- Overall, the seed replacement rate has been improving, but much more can be done in this regard to give a boost to productivity through seed improvement.

Major factors affecting growth potential

- Lack of long term policy perspective
 - No long term strategy for agricultural development
 - National Agricultural Policy was announced only in the year 2000
 - Sectoral priority to industry from the second FYP
 - Weaknesses of policies followed for agricultural development
 - Inward-looking policies – **restrictions on export.**
 - Excessive **price based focus** than non-price factors like water, infrastructure, R&D, extension services etc
- Lagging research and development efforts
 - There is hardly any scope for expansion of area. Hence, productivity must increase to keep up with the increasing demand. R&D has a lot of role to play here
 - Poor productivity in India compared to other countries and even compared to world average
 - After the green revolution, there has been no major breakthrough in agricultural research. GM is a promising area but its safety has not yet been conclusively established.
 - India, however, has the largest public agricultural research establishment in the world. ICAR and agricultural universities
 - The research system should be responsive to the changing needs and circumstances and should focus on specific requirements of each agro-climatic region
 - Technology generation and dissemination: Focus on yield through better inputs not sufficient. Emphasis required on sustainable use of land, soil and water.
 - Need to develop much stronger linkages between research depts and farmers
- Rising soil degradation and over-exploitation of groundwater leading to degradation of natural resources
 - Around 40 pc of India's total geographical area is officially estimated as degraded – leading to significant loss of yield
 - Excess focus on rice and wheat due to increasing procurement prices - depleting soil health and productivity
 - Rapid increase in number of tube wells leading to over exploitation of groundwater.
- Subsidies vis-a-vis investments and farm support systems
- Agriculture's terms of trade and farm price volatility due to international linkages
 - Ensure rapid development of backward farm linkages
- Issues as mentioned in 11th five year plan: low replacement rate of seeds, slow growth in area under irrigation and fertilizer use, decline in power supply, slowdown in diversification.
- Inconsistent trade policy with no clearly defined objectives w.r.t products to be traded.

- Summary: Need to correct the policy bias against agriculture, make higher investments, develop new varieties of seeds, conserve natural resources like land and water and provide incentives to the farmers to adopt modernization

Government Initiatives

- Green Revolution
- National Policy on Agriculture, 2002
- National Policy for Farmers, 2007
 - Major policy provisions include provisions for asset reforms, water use efficiency, use of technology, inputs and services like soil health, good quality seeds, credit, support for women etc.
 - Focus on millets as well
 - National Social Security Scheme for farmers included

Agriculture during the 11th plan

- Flagship schemes
 - Rashtriya Krishi Vikas Yojana
 - National Food Security Mission
 - National Horticulture Mission (2005-06)
 - Integrated Scheme of Pulses, Oilseeds and Maize
 - Technology Mission for Integrated Development of Horticulture in North-east and Himalayan States (2001-02)
 - National Mission for Sustainable Agriculture
 - National Mission on Micro Irrigation was launched in 2010 in addition to the earlier Micro Irrigation Scheme launched in 2006
 - National Bamboo Mission
 - Krishi Vikas Yojana
- Avg growth of 2.03 pc against the Plan target of 4 pc per annum.
- For sustainable and inclusive growth
 - Must focus on the small and marginal farmers as well as female farmers
 - Group approach should be adopted so that they can reap economies of scale
 - Bring technology to farmers
 - Improving efficiency of investments
 - Diversifying while also protecting food security concerns
 - Fostering inclusiveness through a group approach
- Irrigation
 - Envisages creation of an additional potential of 16 mn ha
 - Bharat Nirman aims to bring an additional 1 crore ha of land under irrigation by 2012
 - Accelerated Irrigation Benefits Programme still on

Issues:

Subsidies v.s Investment

- Agriculture subsidies have increased by 740% over 2003-09.
- Downsides of subsidies:
 - Fertilizer subsidy touched almost 1 lakh crore in 2008-09
 - Promotes overuse of fertiliser and thereby catalysing soil degradation
 - As a result, agricultural production in the bread baskets of the country has stagnated, posing a threat to the food security of the country
 - Drylands do not receive the benefit of crores of subsidy given in fertilizers

- Subsidies on fertiliser, power and irrigation have contributed to soil degradation
- The 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 like power supply, in some cases involving macroeconomic inefficiencies such as private investment in diesel generating sets. This leads to under utilization of power capacity due to poor distribution and maintenance.
- An unfortunate trend over the past two decades has been that expenditure control efforts following fiscal shocks such as the Pay Commissions awards have led to cutbacks in agricultural investment and extension, but not in subsidies. Most of the subsidies are on fertilizer, power, and irrigation water and these have actually contributed to the degradation of natural resources. Further, a considerable amount of Plan expenditure on agriculture is not on investment but on subsidies not accounted for in the above list.
- Simplistic fiscal rules such as protecting Plan expenditures more than non-Plan expenditures add to the problem. For example, although the Plan share in States' total expenditure on agricultural and allied sectors has improved considerably from a low just after Fifth Pay Commission, much of this represents increase in Plan subsidies at the cost of essential staff, particularly in the extension system and the co-operative sector. With hindsight, it appears that the policy of restraining new hiring may have been excessive, as is evident from the age composition and high vacancies among extension staff and reduced reach of co-operatives. Even a relatively small percentage reduction in subsidies can finance relatively large increase in public investment in crucial areas such as soil amelioration, watershed development, groundwater recharge, surface irrigation, and other infrastructure and can also allow substantial expansion in the reach of critical farm support systems
- After 2003, the investments have started to increase. As a percentage of agri-GDP, the GCF (agri) has more than doubled during the last decade which is a positive sign
 - Gross Capital Formation (GCF) in agriculture and allied sectors as a proportion of the GDP has increased to around 19% in 2010-11
 - In the early 1980s, the share of the public sector and private sector (including household sector) in gross capital formation in agriculture was roughly equal. Now, over 80% of investment is private. Some have argued that liberalization has led to an increase in private investment, as agriculture has become more remunerative.
 - Irrigation remains the most dominant component in the overall investment in agriculture. Without proper use of water, it is difficult to get good returns on better high yielding seeds and higher doses of fertilizers. Groundwater irrigation, which is a bigger source of irrigation today, suffers from over-exploitation in most of the states, particularly in the north-west where the water table is depleting drastically. Free or low pricing of power for irrigation has primarily contributed to this problem. Major reforms in the power sector, improvement in the quality of power and availability of power are a precondition for improving the overall groundwater situation in the country.
 - Gross Irrigated area as a per cent of Gross Cropped area has increased from 34 percent in 1990-91 to 45.3 percent in 2008-09
- Decreased public spending in creation of supporting infrastructure in rural areas has discouraged private investment in this sector. Various studies have pointed out that public investment is necessary to 'crowd-in' private investment in agriculture given the clear distinction of the two types of investment. Complimentarity between public and private sector capital formation in agricultural sector. Public investment can create infrastructure while the private investment is essential for short term asset building mainly in the areas of mechanisation, ground levelling, private irrigation etc
- Three areas should get priority in public investments

- Rural roads
- Electricity
- Irrigation projects
- <all three of them are under Bharat Nirman project>
- Fall in agri growth in 1990s could be due to fall in GCF in 1980s.
- Talk about bringing urea under the Nutrient Based Subsidy (NBS) system and decontrolling its prices
- Reforms required in power subsidies.
- Need to revamp seed production and distribution system by strengthening public sector seed agencies and involving private sector.

Access to credit

- While the overall credit to agriculture has been growing phenomenally during the last five years or so, and the interest rates for farmers have also been reduced to 7 percent (4 percent after taking into account the 3 percent subvention in interest for timely repayment of crop loans), yet the biggest challenge remains in terms of increasing access to credit, particularly for the bottom 40 percent
- Financial inclusion more important than low interest rates. KCC helpful.
- Modified National Agriculture Insurance Scheme (NAIS) – Some of the major improvements made in the MNAIS are actuarial premium with subsidy in premium at different rates, all claims liability to be on the insurer, unit area of insurance reduced to village panchayat level for major crops, indemnity for prevented/sowing/ planting risk and for post-harvest losses due to cyclone, on account payment up to 25 per cent advance of likely claims as immediate relief, more proficient basis for calculation of threshold yield, and allowing private-sector insurers with adequate infrastructure.
- NSSO, 2005 – 50% farming households indebted. – higher in AP (82%), TN, Punjab and Kerala – states with higher investments. Institutional credit only 50% on an average.
 - Due to reforms, increase in prices of inputs – fertilisers, water charges
 - Increased volatility of certain crops due to opening up of trade.
 - crop sale linked to credit from traders.
- Acc to RBI, diminishing share of institutional credit – share of small farmers worst affected – cooperatives and RRBs not been upto the mark.
- Over the last 40 years, there has been a striking increase in the credit intensity of agriculture as measured by the ratio of agricultural credit to agricultural GDP. The credit intensity increased from 12 per cent in the early 1970s to 67 per cent by 2010/11
- Increasing credit by commercial banks post nationalization of banks
- The regional distribution of agricultural credit by commercial banks, both in terms of quantum of credit and the number of accounts, has been skewed. There is a significant concentration in the southern states (Andhra Pradesh, Karnataka, Kerala, Tamil Nadu) followed by the northern and western states. In contrast, the share of the eastern (Bihar, Jharkhand, Odisha and West Bengal) and the north-eastern states has been low
- The rise in agricultural NPAs during 2011/12 could be due to the lagged effect of double-digit growth in agricultural credit during the last four years (2006/07 to 2009/10), the general economic slowdown and also, possibly, the new system driven identification of NPAs
- **the broad trends in agricultural credit are: (i) increasing share of formal institutional credit in total rural credit; (ii) increasing credit intensity (ratio of agricultural credit to agricultural GDP) of agriculture; (iii) increasing share of commercial banks in total institutional credit to agriculture; (iv) faster growth of indirect agricultural credit; (v) decline in the share of long-term agricultural credit; (vi) skewed regional distribution of agricultural credit; (vii) importance of Kisan Credit Cards; and (viii) higher level of NPAs in the agriculture sector compared to the non-agriculture sector. As is clearly evident, some of these trends are positive and some negative.**

- Despite the impressive gains made by the rural credit delivery system in terms of resource mobilisation, geographical coverage and functional reach, the financial health of the rural credit institutions has deteriorated raising questions about their sustainability. **Nearly three quarters of the farmer households still do not have access to the formal credit system and have no means to insure themselves against income shocks. This leaves them vulnerable to the informal money lenders.**
- Provision of credit is necessary, but not sufficient, to improve agricultural production in the country. Credit needs to be supplemented by research and knowledge dissemination to the farmers. In the 1960s and 1970s, India had an agricultural extension service that did a very credible job in translating knowledge from the lab to the land. In the 1970s, Government of India launched the Command Area Development Programme to ensure full utilisation of existing irrigation facilities to improve agricultural productivity. During this period, the World Bank funded Training and Visit (T&V) System also played an important role in strengthening agricultural extension by unifying the country-wide attempts in agricultural extension services and conveying regular messages to farmers, especially on Green Revolution technologies.
- **Over the years, the extension network has crumbled away owing to a variety of reasons. In this 'information age', the key to raising productivity lies in learning from the best practices in the world and adapting them to local conditions - 'thinking global and acting local' in its quintessence. Rebuilding an agricultural extension system that is knowledgeable, enthusiastic and sensitive to the Indian learning culture remains a challenge.**
- **Credit for Promoting Rain-fed Agriculture**
- 36. Nearly 65 per cent of agriculture in India is rain-fed, cultivated largely by small and marginal farmers. Evidently, improving productivity here is critical to overall agricultural growth. We cannot raise agricultural growth consistently to 4 per cent per annum without a focus on research and agricultural credit in rain-fed areas.
- 37. There is also need for more robust weather insurance and agricultural extension services to target diversified livelihood options in the rain-fed areas. As appraisal and disbursement of credit for rain-fed agriculture requires a different orientation and approach, there is also a need to design innovative credit products. Such products would help in building the confidence of bankers in rain-fed agriculture, and would also ensure the financial and economic inclusion of the vast majority of small and marginal farmers from these areas.
- **Conclusion**
- 39. Let me now conclude. It is clichéd; nevertheless, it is well worth repeating that agriculture defines the emotional and economic well being of India. True, agriculture's share in GDP is less than 15 per cent but it still remains the direct domain of over half of the population whose economic prospects are linked to the performance of agriculture. According to a World Bank Report, "among 42 developing countries, over the period 1981-2003, one per cent GDP growth originating in agriculture increased the expenditures of the three poorest deciles at least 2.5 times as much as growth originating in the rest of the economy".¹¹ Clearly, improving the performance of agriculture is key to our quest for inclusive growth and poverty reduction.
- 40. We need to do many things to improve the performance of our agriculture sector; improving the flow of agricultural credit is one of the important ones. This requires effort from all the three institutional segments - commercial banks, RRBs and cooperatives. Commercial banks need to find innovative ways of reaching out to farmer, RRBs need to leverage on their comparative advantage and cooperatives have to improve their governance structures. As the premiere public institution in agricultural credit, NABARD's role is crucial in this regard.

Irrigation

- 45 pc of nearly 175 mn ha of cropped area is irrigated
- Trends
 - Irrigation potential increased over the years but sub-utilisation continues.
 - It accounts for the largest part of total investments in the agricultural sector

- Importance of ground water as an irrigation source has also increased considerably. Punjab – 75% blocks overexploited in terms of groundwater.
- In 2008-09, allocation of irrigation increased by more than 80%.
- Uneven access
 - Inter-regional variance
 - Inequality in access within the farming population
- Areas of concern
 - Depletion of ground water
 - Environmental concerns
 - Costs
- Steps to take
 - Improving water use efficiency
 - Emphasis on Participatory Irrigation Management (PIM)
 - Water governance
 - Economic incentives for efficient use
- Govt Schemes
 - Accelerated Irrigation Benefits Programme was started during 1996-97. It extends assistance for the completion of incomplete irrigation schemes

Food Security

- Food security should also incorporate nutritional security. This requires emphasising the increase in production of pulses, fruits, vegetables, poultry and meat.
- Interpreted broadly
- Includes nutritional security which particularly incorporates maternal health and infant health due to the involvement of the nutritional aspect
- Affordability, accessibility and availability
- Food security seeks to address all the three dimensions of hunger: chronic, hidden and transient
- It also is the first step towards inclusive development
- Results
 - No correlation between state-wise allocation of subsidies to poverty levels
 - High food subsidy bill
 - Buffer stock very high

Public Distribution System

- TPDS introduced in 1997
- High procurement prices

Agricultural Pricing

- Agricultural price policy is one of the important instruments in achieving food security by improving production, employment and incomes of the farmers.
- To ensure
 - Remunerative prices to growers
 - Encouraging higher investment and production
 - Safeguard the interest of consumers by making sure that adequate supplies are available (buffer stock)
 - Provide grains through PDS
- Cover average cost and not total cost
- Agricultural price policy has been largely successful in playing a major role in regard to providing reasonable level of margins of around 20% over total costs to the farmers of both rice and wheat. In turn, it seems to have encouraged farmers' investments in yield increasing technology and in increasing production and enabling sufficient procurement

for buffer stocks and providing physical access to food by achieving and maintaining self-sufficiency.

- Issues:
 - With liberalization, the pricing policy has become linked to the international trends. Thus government had to offer higher prices in 1997 and 2007 and 2008 in case of wheat, making the gross margin to more than 50%
 - The pulls and pressures of democracy and farmer lobbies make it impossible to roll back these prices without very high political costs, even if global prices recede considerably.
 - The result of these higher support prices is that it hurts the consumers and has adverse impact on poverty reduction. It was estimated by Parikh et al (2003) that a 10% increase in MSPs of wheat and rice leads to a decline in overall GDP by 0.33%, increase in aggregate price index by 1.5 per cent, reduction in investments by 1.9% and miniscule impact on agricultural GDP. The higher support prices for crops like rice and wheat also distorts the inter-crop price parity (Shift in area cultivation from coarse cereals, pulses and oilseeds), increase money wages for the farmers of other crops and eventually the cost of wage goods for the industries. They also conclude that the bottom 80% of the rural and all of urban population is worse off.
 - The averages tend to mask regional variations and the impacts of price policy in a vast country like ours with divergent climatic conditions. The cost of production is higher than all-India average in some of the poorer states due to low productivity and do not cover all costs.
 - Currently, MSP driven by politically strong farmer lobbies. For eg: Cabinet had asked CACP to reconsider the pricing policy of wheat in 2012 when they didn't recommend any rise
- To sum up, a higher emphasis has to be given to non-price interventions through public investments to supplement price policy measures. This would reduce both the cost of production and thereby need for higher support prices. Also, system of variable tariffs has to be implemented to insulate from the impacts on domestic prices of higher volatility in international food market.

For procurement of horticultural commodities which are perishable in nature and not covered under the Price Support Scheme, with a view to protect the growers of these commodities from making distress sale in the event of bumper crop during the peak harvesting periods when the prices tend to fall below the economic cost of production, a Market Intervention Scheme (MIS) is implemented on the request of a State /UT Government which is ready to bear 50 percent loss (25 percent in case of North-Eastern States), if any, incurred on its implementation

Agriculture institutions

- APMC Act, ECA

Agriculture trade

India's agricultural exports have been a bright spot in an otherwise dismal balance of payments landscape in recent times. At \$37.1 billion in 2011-12, such exports far exceeded imports of \$17.2 billion in that year. But it is not just being a net agri-exporter – the surplus here rose from \$14 billion in 2010-11 to almost \$20 billion last fiscal, even as the country's overall merchandise trade deficit ballooned to \$ 190 billion from \$ 131 billion during the same period – that is heartening.

Equally significant is the diversification that has happened within the agri-export basket. Till about 10 years back, this was dominated by marine products, cashew, tea, coffee and spices. But today, there are newer and more dynamic segments such as cotton, rice, wheat, maize, meat, oil-

meals and guar-gum. India has even emerged as the world's No.1 exporter of rice (ahead of Thailand) and beef/buffalo meat (beating Brazil), while turning from an importer to the largest cotton shipper after the US.

What is remarkable is that all this has been achieved notwithstanding a policy environment that has not been particularly conducive for agri-exports. The Government has clamped bans and other restrictions in exports of rice, wheat, sugar, cotton, onion or milk products at the slightest indication of domestic shortages or upswing in global prices. On the other hand, virtually all farm products now are importable at nil duty. If agri-exports have fared well despite such a trade hostile regime – clearly discriminating against producers in the name of protecting poor consumers – it only indicates the inherent competitiveness that India possesses in this field. The fact that the country has also substantially diversified its export basket beyond traditional marine and plantation products – even while two-thirds of its agri-imports are constituted by just two items, edible oils and pulses – further reinforces this point.

Given the above inherent advantage, and the added opportunity for exports presented by a weaker rupee, the country should not fritter it away. The time has come to institute a stable and rational agri-trade policy, as opposed to the existing regime of knee-jerk export restrictions or fixing import duties based on selective lobby pressures. The Government may do well to follow a recent suggestion by the Chairman of the Commission for Agricultural Costs and Prices, Ashok Gulati, to totally dispense with quantitative restrictions on agri-exports or imports and replace these with a transparent system of tariffs. The tariffs, in turn, should be linked to global price trends. If international prices for a particular commodity fall, say 15-20 per cent below a certain long-term trend level that can always be determined, the Government could impose de novo or even raise tariffs in a calibrated manner. They can likewise be levied on exports, when world prices shoot up more than 15-20 per cent above the trend line. Tariffs are definitely a better way to regulate exports and imports than bans or quotas.

Way Forward

- GoI strategy: The four components of the strategy comprised of
 - extending the green revolution to the Eastern region of the country,
 - reducing the significant wastage in storage as well as in the operations of the existing food supply chains,
 - improving credit availability to the farmers and
 - providing further impetus to the development of the food processing sector by making available state-of-the-art infrastructure.
- crop diversification, developing high yielding disease resistant seeds, improvement in water management practices, promotion of balanced use of fertilizers and pesticides. Further, better and increased use of satellite communication for weather forecasting and effective information dissemination to the farming community would help in preventing crop failure.
- Though self sufficient in food, high rural distress.
- Second green revolution (?)
- Relook at all the issues offering forward and backward linkages in the agricultural production cycle
- Focus on oilseeds, pulses and coarse cereals
- Coarse cereals: high nutrition, can be grown in dry areas, enhance fertility of soil in rotation
- PDS should be reformed: coarse cereals should also be provided through PDS
- Timely availability of credit at affordable costs
- Wider extension of insurance facilities to the farm sector
- Water and irrigation infrastructure
- Drip irrigation
- Organic manures should be popularized and their commercial production encouraged
- Educate farmers about technology and agricultural techniques

- Share of horticulture has increased in recent times. However this segment is highly perishable in nature and thus requires faster and better linkages between farms and firms in processing and organized retailing
- Public-Private Participation in Indian Agriculture: The private sector involvement in Indian agriculture is a recent development. This is apparent in initiative such as infusion of new technologies like BT cotton, hybrid seed technology in maize; in a mainstreaming of the fragmented small holders by integration of rural business/ service hubs (RBHs) at the back end and agro-processing industry and organized retailing at the front end. Successful examples like Bt cotton, hybrid maize, pusa basmati rice, etc. suggest beneficial outcomes comes from public sector partnership with the private sector farmer groups and the like. The government has to play a more proactive role as coordinator, facilitator and also as a regulator.
- Besides improving storage facilities there is a need to redesign the mechanics of procurement and release of foodgrains to the market to ensure that the impact on prices is substantial in the desire direction. An improvement in marketing conditions and encouragement to private sector participation can be achieved by reforming the Agricultural Produce Marketing Committee (APMC) Acts. Appropriate changes in the APMC Acts can boost private sector investment in developing regularized markets, logistics and warehouse receipt systems, futures markets, and in infrastructure (such as cold storage facilities, quality certification, etc.) for imports and exports. This is particularly relevant for the high value segment that is currently hostage to high post-harvest losses and weak farm-firm linkages. The introduction of the Model Act in 2003 was directed towards allowing private market yards, direct buying and selling, and also to promote and regulate contract farming in high value agriculture. Although many states have adopted the new Model Act, with modifications, its impact on farmers in terms of better prices for their produce and a reduction in the high differences between farm harvest prices and consumer prices is not yet visible.

Major Initiatives for Farmers

The Government gives very high priority to agriculture and specially to the prosperity of farmers. It is implementing a number of large schemes and providing funds to State governments for taking new initiatives for increasing farmers' incomes. Some of the major actions taken in the recent past are given below:

- Government has raised MSP in recent years by huge margin. MSP for wheat and rice has been more than doubled in last 8 years. MSP for some pulse crops has gone up three times.
- Government has doubled the sugarcane support price in four years.
- Record foodgrain production of 257 million tonnes last year, supported by massive increase in MSP to farmers. It is more than thrice of foodgrain production 45 years back.
- Government subsidises farm loans considerably. Crop loans upto Rs. 3 lakh are available at 4% interest. Other farm loans too are available at a subsidised rate of 7%.
- Farm credit has gone up substantially. Over 6 crore farmers avail of loans from banks and cooperatives. Total farm credit exceeds Rs. 5 lakh crore.
- Government has made law for warehouse receipts to be negotiable. It allows farmers to take loan from banks on such receipts.
- Banks have issued nearly 12 crore Kisan Credit Cards, helping farmers take loans hassle-free. KCC can now also be used as ATM card.
- A special scheme, BGREI (Bringing Green Revolution to Eastern India), has been launched to support farmers in eastern India. Farmers in eastern UP, Bihar, Jharkhand, Odisha, Chhattisgarh, WB benefit from this scheme.

- Government focus on raising pulses production. Initiatives such as special scheme to organise pulses villages and significant rise in MSP will reduce import of pulses.
- Kisan call centre provides expert advice to farmers.

PPP for Integrated Agriculture Development: This has been launched as a pilot scheme under RKVY during 2012-13 with the objective of augmenting governmental effort in leveraging the capability of private sectors in agriculture development.

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Food Processing

India ranks first in the production of milk, pulses and tea & second in the production of fruits and vegetables in the world.

Despite being a major food producer, India's share in world food trade is less than 2%.

The level of processing in India is extremely low at around 6% compared to 60-80% in developed countries and over 30% even in most other Asian and Latin American developing countries.

There is clearly very high wastage and very low value addition in our country, with corresponding loss of business opportunities as well as losses in farm income.

The food processing sector has undoubtedly the potential to be an industry driver that can transform India's rural economy. There are a number of constraints both in the forward and backward linkages in the sector. But if we can get our act together, as we must, India can emerge as a leader in the global food processing industry.

The government is working sincerely to realize this vision for the food processing sector. Our Government adopted in 2005 a 'Vision 2015 - Strategy and Action Plan' to enhance the level of processing of perishables from 6% to 20%, to increase value addition from 20% to 35% and to increase India's share in global food trade from 2% to 3%.

Under this broad framework of Vision 2015, the UPA Government, in its first term, introduced a number of supportive policies to meet these goals such as **increased focus on agro-based industries** in our trade policy, **automatic approval for foreign equity** upto 100% in food processing units and **significant customs duty exemptions**. During the 11th Five Year Plan, the government has initiated major infrastructure development programmes like the **Mega Food Park**, Cold Chain, Value Addition and preservation Infrastructure and modernization of abattoirs.

These initiatives have started yielding some results and the sector has witnessed increases in the processing level and value addition. Despite the economic slowdown, the food processing industry in India grew at an impressive rate of 14.7% in 2008-09.

I recognize that inadequate infrastructure is a major problem facing this important sector. But the effects of the flagship Bharat Nirman programme are beginning to be felt on the ground and will I hope transform rural infrastructure in the years to come. **Expanding public investment is also necessary in building rural on-farm infrastructure like primary processing centres, collection centres, cold chains** etc. We should reflect on how best we can increase private sector investment in these areas.

I am happy to learn that the Ministry of Food Processing Industries is in the process of formulating a National Food Processing Policy, which will spell out the vision of the government for the rapid growth of the food processing sector.

The policy to be effective will have to be comprehensive and adopt a number of legislative, administrative and promotional measures. The policy should evolve through discussions with the States and industry both in the public and private sector. It should promote the development of viable agri-business and agro industry models based on different agro-climates and regions of this vast country. It should look at institutional strengthening and capacity building across the value chain.

The policy should seek to promote innovation and technological development. Improved technologies to prolong the shelf life of vegetables and fruits, better packaging machinery and cold storage systems are just some of the areas where more work is needed. The Central Food Technology Research Institute should play a more central and pro-active role in promoting the

knowledge base of the industry through greater public private partnerships in technology development.

The R&D base of the industry also needs considerable strengthening. While basic agricultural research has a very strong and large institutional network in the country, there is inadequate focus on the food processing sector. I would urge agricultural universities, premier technological institutes and the private sector to actively undertake collaborative strategic research in this important sector. We should promote international collaborations in this field.

Another critical objective should be for the industry to reach international standards of food safety and quality. This requires a multi pronged effort. The authorities should initiate a sustained campaign to educate consumers and promote quality assurance in industry. World-class food testing laboratories should be established in the country in both the public and private sector. All efforts should be made to harmonize Indian food standards with Codex. There is no reason why Indian consumers should not demand and get products meeting the highest quality and safety standards in the world. That is a legitimate ambition for all of us to work to.

I recognize that we need to look at the taxation structure in the industry. Though primary agricultural commodities are mostly exempted from taxes, processed foods are subjected to multiple levies. There is therefore an urgent need to rationalize and simplify the tax structure.

The food processing industry is fragmented and most of the players are small and unorganized. This poses a special challenge to the development of the industry as a whole. The small scale sector will require hand holding to make them profitable and even competitive in the world market.

The State governments can play and should play an important catalytic role in this effort in partnership with bankers, financial institutions and technical and management institutions. SME clusters could be identified for all round upgradation by infusing new technology, new packaging methods and by providing adequate marketing support.

It is a matter of great satisfaction that a few States have already formulated their own state specific policies. I would urge other states to do the same to supplement and support the efforts of the central government by removing some teething problems faced by this industry. Amendments to the APMC Act should be implemented in both letter and spirit. The States should work towards early implementation of the Goods and Services Tax while removing subjectivity in treatment and classification of food products. The States should enforce food laws strictly by increasing the number of trained inspectors and lab facilities.

The agenda of your discussions is large. But it is important for both the center and the States to work in cohesion if we are to seize upon the immense opportunities offered by the food processing industry. This is a 'sunrise' industry and if we give it the importance it deserves, it has the potential to dramatically improve rural livelihood opportunities and employment, to bridge the rural urban divide and to improve farming methods and practices. There is much therefore that is at stake and I urge you to work in a constructive partnership that will, in fact, must transform the food processing sector in the country and thereby also transform the fortunes of rural India

PIB

The year 2012 saw the advent of a mega scheme in the food processing sector which aims to provide much needed thrust to this sector in a big way. This centrally sponsored scheme "National Mission on Food Processing" was launched on 01.04.2012. The mega scheme caters to different aspects of this industry viz. modernization of food processing industries, establishing of mega food parks, integrated cold chains and preservation and modernization of abattoir.

Launching of National Mission on Food Processing (NMFP) is likely to have greater involvement of the State Governments and all stakeholders. NMFP focuses on food processing for enhancing farm productivity and farmer's revenue. It facilitates in addressing both institutional and

infrastructural gaps along the value chains. It also has provision for promoting skill development, training and entrepreneurship in post-harvest management.

An allocation of Rs. 250 crores has been made for NMFP in BE-2012-13, out of which an amount of Rs.179.39 crores has been released as 1st installment of grant to the States/Uts. The funding pattern for NMFP is 75:25 by Govt. of India and States respectively, except for North Eastern States. For North Eastern States the ratio is 90:10 respectively. The UTs administered by Govt. of India are funded on 100% grant basis.

In the 11th Five year Plan a total allocation of Rs. 600 crores was provided for technology upgradation and modernization of food processing industries. The Ministry has utilized almost the entire fund and has assisted over 3229 Food Processing Units so far. During the current financial year, an amount of Rs. 99.32 crore has been released till 31.10.2012.

Seventy Nine Cold Chain projects were approved to be taken up during the 11th plan, out of which 73 projects have been sanctioned by the Ministry in different parts of the country. 8 projects have already started commercial production.. Remaining projects are in various stages of implementation. During 11th Plan an amount of Rs.157.08 crores was released for the scheme and during the year 2012-13 (upto 30.11.2012) an amount of Rs.44.74 crores has been released.

Government has recently approved to upscale the 11th Plan scheme to complete 8 approved on-going projects and to take up setting up of 25 new abattoirs and modernization of 25 existing abattoirs involving an estimated expenditure of Rs.330.84 crores. During the 11th Plan, an amount of Rs. 40.93 crores has been released. During the current financial year (upto 30.11.2012) an amount of Rs. 8.04 crores has been released.

The scheme for Human Resource Development envisages financial assistance by way of grant to Food Processing Training Centres (FPTCs), creation of infrastructure for running Degree/Diploma courses in Food Processing in Universities and Entrepreneurship Development Programmes (EDPs). During the 11th Plan an amount of Rs.23.92 crores was sanctioned for 34 infrastructure facilities, Rs.17 crores for 159 FPTCs and Rs.3.83 crores for 994 EDPs.

Under the scheme of strengthening of Institutions the Government in 2006 approved setting up of NIFTEM at an estimated cost of Rs. 244.60 crore including foreign exchange component of US \$ 8.1 million. The National Institute of Food Technology, Entrepreneurship and Management (NIFTEM) has been granted the Status of "Deemed to be University" under de-novo category by Ministry of Human Resource Development on 08.05.2012 and the academic session commences from 16.08.2012 for B. Tech (Food Technology and Management) and M. Tech courses.

Out of 30 Mega Food Parks proposed during the 11th Five Year Plan, the Ministry has approved all the projects under the Schemes. Of this, final approval has been accorded to 13 Mega Food Parks in the State of Andhra Pradesh, Punjab, Jharkhand, Assam, West Bengal, Uttrakhand, Tamil Nadu, Karnataka, Bihar, Tripura, Gujarat, Orissa and Madhya Pradesh. During the 11th Plan an amount of Rs. 217.23 crore was released for this scheme. An amount of Rs. 51.74 crore has been released during 2012-13 (upto 30.11.2012).

WTO and Agriculture – ‘major unfinished business’ (read Dhar)

- Uruguay Round multilateral trade negotiations were concluded after 7 years of negotiation in December 1993
- The WTO Agreement on Agriculture was one of the main agreements which was negotiated
- Agreement on Agriculture contains provisions in three broad areas of agriculture
 - Market Access
 - Domestic Support
 - Export Subsidies
- Market Access
 - This is the most important aspect of the negotiation because all countries restrict market access while only few have export subsidies and domestic support
 - This includes tariffication, tariff reduction and access opportunities
 - Tariffication means that all NTBs should be withdrawn (such as quotas, minimum export prices etc)
 - Adopts a single approach using a tiered formula
 - Single approach: everyone except LDCs have to contribute by improving market access for all products
 - Sensitive products: All countries can list some sensitive products and are allowed flexibility in the way these products are treated, although even sensitive products have to see ‘substantial improvements’ in market access.
 - Special and differential treatment
 - Purpose: for rural development, food security and livelihood security
 - Specifically, special treatment is to be given to developing countries in ‘all elements of the negotiation’, including ‘lesser’ commitments in the formula and long implementation period
 - Special products: developing countries will be given additional flexibility for products that are specially important for their food security, livelihood security and rural development.
 - Special Safeguard Mechanisms: is intended to provide contingent protection to poor farmers in developing countries from negative shocks to import prices or from surges in imports. [Safeguards are contingency restrictions on imports taken temporarily to deal with special circumstances such as a sudden surge in imports. AoA has special provisions on safeguards. In agriculture, safeguards (unlike normal safeguards) can be triggered automatically when import volumes rise above a certain level or if prices fall below a certain level; and it is not necessary to demonstrate that serious injury is being caused to the domestic industry]
 - AoA requires (from 1995)
 - 36% average reduction by developed countries, with a minimum per tariff line reduction of 15% over six years
 - 24% average reduction by developing countries with a minimum per tariff line reduction of 10% over ten years
- Domestic Support (subsidies)
 - AoA structures domestic support into three categories
 - Green Box
 - Amber Box
 - Blue Box

- Green Box
 - Non (or minimal) trade distorting subsidies
 - They have to be government funded and must not involve price support
 - They tend to be programmes that are not targeted at particular products and include direct income supports for farmers that are not related to current production levels or prices. They also include environmental protection and regional developmental programmes. These subsidies are therefore allowed without limits
- Amber Box
 - All domestic support measures for production and trade fall into the amber box
 - These include measures to support prices, or subsidies directly related to production quantities
 - These supports are subject to limits which are allowed: 5% of total production for developed countries, 10% for developing countries
 - Reduction commitments are expressed in terms of a "Total Aggregate Measurement of Support" (Total AMS)
- Blue Box
 - This is the "amber box with conditions" – conditions designed to reduce distortion
 - Any support that would normally be in the amber box, is placed in the blue box if the support also required farmers to limit production
 - At present there are no limits on spending on blue box subsidies.
- Export subsidies
 - Developed countries are required to reduce their export subsidy by 36% (by value) or 21% (by volume) over the six years
 - For developing countries the % cuts are 24% (by value) or 14% (by volume) over 10 years
- India's commitment
 - As India was maintaining QRs due to balance of payments reasons (which is a WTO consistent measure), it did not have to undertake any commitments in regard to market access
- In India, exporters of agricultural commodities do not get any direct subsidy. Indirect subsidies are given
- Tariff cuts and elimination of export subsidies will help nations that are net exporters of agri goods (like India) and net importers will tend to lose. India's export basket consists of about 15% agri products
- Pascal Lamy had proposed for 20-20-20 proposal in 2006: US to accept ceiling of \$20b on domestic farm subsidies, developed countries to accept G20 proposal of 54% reduction in agri tariffs in developed countries, developing countries to accept 20% as the tariff ceiling on industrial goods. The proposal was criticized by all sides and not accepted.

Agriculture since 1991

- Some suggest that because of changed economic policy regime since 1990s, agri sector has suffered. Economic theory suggests (i) improved terms of trade of agri sector due to liberalized manufacturing sector and (ii) exchange rate depreciation also should improve ToT.
- Empirical evidence:
 - Terms of trade on an average increased post reform period.
 - Apart from decline in cotton prices, prices of farm products have not changed significantly.
 - Import penetration (import: production) increased only for pulses and cotton
 - Cotton prodn – over 100 times increased production since 2000. Prior to that imports were high. Expansion in output must have led to decline in relative prices.
 - Price volatility in agri products less than in global markets – integration is less than full. Volatility in non-food crops prices increased during 2003-07 as compared to 1998-2002.

Thus, price factors not responsible for fall in agri production.

- Non price factors:
 - Shrinking farm size – Marginal and small farmers increased, also leading to increased operated area by them.
 - 1960-61: 62%
 - 1991-92: 80%
 - 2002-03: 86%
 - According to NSSO, 2005 – 40% farmers report that farming is not profitable.
 - Reduced farm size implies: (i) can't access new technology and adopt efficient forms of farm prodn since less credit availability; (ii) Loss of soil nutrients (due to adverse fertilizer subsidy policy) and declining water availability (due to free/ subsidized electricity) can be compensated only through greater expenditure that is not possible in case of small farms.
 - Solution: recognize tenancy
 - Capital formation:
 - Roads, embankments, irrigation – public good, unlikely to be taken up by private sector.
 - Fall in public sector investment since 1980s, with some rise since 1990s – again stagnation.
 - Growth in coverage of irrigated area in all the main crop categories has slowed in the nineties – despite increased allocation of resources. Issue of effective governance.
 - R&D:
 - For both 'research and education' and 'extension and training', growth in public expenditure has slowed down substantially in 1990s.
 - Public expenditure on research and extension as share of revenue spending in agri sector has fallen over years – shows shifting of priority.
 - Credit – already discussed.
 - Increased presence of money lenders: 1991-17.5%, 2002-26.8%
Source: NSSO, 2005
 - Risk aversion tendency of the bankers towards small and marginal farmers as against the large farmers.

Thus, non-price factors mostly responsible for decline in growth of agri sector

Agriculture Foodgrain policy

- Objective of procurement policy: to incentivize farmers and have buffer stock.
- Facts:
- Year-on-year food price inflation has been around 20%

- Around May-June 2010, international price of wheat was around 30% cheaper than wheat in India
- Despite all this, we still have buffer stocks with the FCI –foodgrain inventories are worth over 66.5 million tonnes, three times the buffer requirement, even as the market prices of rice and wheat are high, hurting ordinary consumers
- the annual production of cereals already exceeds the anticipated demand in the terminal year of the 12th Plan (2016-17)
- Consider the following discrepancies in the farm sector. The country is now the world's largest exporter of rice, a crop grown with huge quantities of scarce water and heavily subsidised fertilisers. At the same time, it is the leading importer of pulses, which require very little water to grow and fortify the land with nitrogen to reduce the fertiliser need even for the subsequent crops

Despite this...

- Yet the government continues to raise the minimum support prices and offer other incentives to ensure higher production of these cereals.
- For pulses and oilseeds, on the other hand, there is no incentive to boost the output — even the declaration of the MSPs is of little use, given the scant market support. This is primarily because procurement efforts in these commodities, which are currently not part of Public Distribution, simply do not offer farmers the certainty that they have from procurement effort in rice and wheat (12th FYP)

Areas of improvement:

- Food inflation in India for rice and wheat is mostly linked to policy decisions on MSP¹ and on pricing and quantum of PDS and open market sales. For milk, eggs, fish and meat – supply constraints, including feed and fodder shortages that the 2009 drought exacerbated
- mechanism of release of foodgrains is very important and needs to be designed carefully.
 - Due to strict rules regarding selling the grains for profit, lifting by the private sellers is poor, around 20%. Idea should be to allow competition amongst traders to drive down the profits
- MSP policy should be more restrained for rice and wheat and made more effective in case of pulses and oilseeds where India is a net importer
- Khera (2010) – 67% of the wheat meant to be delivered to the poor misses the target.
- Basu: Ideal economic strategy should be procure when the weather is good and sell off when the weather is bad to reduce market prices.
 - Important to design how the foodgrain is released – release foodgrains in small batches.

• ¹ Due to procurement policy, it is unavoidable to have high prices for non-BPL etc. families (See Basu, Uma Kapila).

Agricultural marketing

The agriculture sector needs well-functioning markets to drive growth, employment, and economic prosperity in rural areas. Currently agricultural markets are regulated under respective State Agricultural Produce Marketing (Regulation) Acts, generally known as APMC Act. Besides, there are other regulations, viz. Essential Commodities Act and various Control Orders issued thereunder. All these have created restrictive and monopolistic marketing structures, which have resulted in inefficient operation and high degree of marketing costs. They have also had an adverse impact upon agricultural production and system, inefficient flow of commodities, and lack of competitiveness.

The markets lack even basic infrastructure at many places. When the APMCs were first initiated there was significant gain in market infrastructure development. However, this infrastructure is now out of date, especially given the needs of a diversified agriculture.

- At present only one-fourth of the markets have common drying yards, trader modules, viz., shop, godown, and platform in front of shop exist in only 63% of the markets.
- Cold storage units are needed in the markets where perishable commodities are brought for sale. However they exist only in 9% of the markets at present and grading facilities exist in less than one-third of the markets.
- The basic facilities, viz., internal roads, boundary walls, electric lights, loading and unloading facilities, and weighing equipment are available in more than 80% of the markets. Farmers' rest houses exist in more than half of the regulated markets.
- Covered or open auction platforms exist in only two-thirds of regulated markets. It is evident from the above that there is considerable gap in the facilities available in the market yards.
- Also the farmers have to deal with non-transparent methods of price discovery and there is often lack of auction of graded items. Some modern markets with electronic auctioning have been introduced, but they are the exception. A major modernization of this aspect of the infrastructure is urgently needed.
- The number of regulated markets is relatively more in geographically larger states viz. Andhra Pradesh, Bihar, Maharashtra, Madhya Pradesh, Uttar Pradesh and West Bengal. These six States account for 53% of total regulated markets in the country. However, some of the regulated markets are non-functional, as actual transactions do not take place in their market premises, but market fee is collected by the APMC at designated check posts. In such cases, it is more of a fee collection activity rather than providing marketing functions.

On the basis of the recommendation of the Inter-Ministerial Task Force, Ministry of Agriculture drafted a model law on marketing, which would allow new markets to be established by private entities or co-operatives. The introduction of the Model Act in 2003 was directed towards allowing private market yards, direct buying and selling, and also to promote and regulate contract farming in high-value agriculture with a view to boost private sector investment in developing new regularised markets, logistics and warehouse receipt systems, and in infrastructure (such as cold storage facilities).

Several State Governments have already amended their APMC Acts allowing varying degrees of flexibility. However several States are yet to notify the relevant rules that would make the amendment fully operational. Vested interests in maintaining the existing mandi system intact are very strong.

A committee of the states' ministers in charge of agricultural marketing, constituted to set things right by suggesting measures to speed up marketing reforms, released its first report in September last year. The report was largely disappointing. Contrary to expectations of quickening the reforms process, it mooted a 10-year perspective plan that would help strengthen backward and forward linkages in agricultural marketing.

Private participation is a must and is, indeed, required to facilitate competition. But private investment of this magnitude is unlikely to come about in the absence of a favourable legal framework and policy environment.

Some of the important issues that need to be addressed:

- marketing system improvement and conducive policy environment;
- strengthening of marketing infrastructure and investment needs;
- improving market information system with the use of Information and Communication Technology (ICT);
- human resource development for agricultural marketing; and promotion of exports/external trade.
- empower small producers through their organisations and marketing extension.

We should move to a regime of professionally managed wholesale markets.

These steps should be speedily completed to provide a boost to promotion of direct marketing, contract farming, and setting up of markets in private and co-operative sectors.

In the context of market regulation and development, all States and UT governments should:

- Hold regular elections of agricultural produce market committees and bring professionalism in the functioning of existing regulated markets.
- Plough back the market fee for development of marketing facilities and investments for creation and/or upgradation of infrastructure in market yards/sub-yards.
- Extend greater flexibility to stakeholders, sellers, as well as buyers to interact in the markets.
- Promote grading, standardization, packaging, and certification in the market area.
- Ensure transparency in auction system, penalize arbitrary deductions from the farmers' realization, prompt payments to farmers, dissemination of market intelligence, and speedier and hassle free transactions in the market.
- Improve weighing systems by installing bulk weighing system and handling in a time-bound manner.
- The National Commission on Agriculture (1976) and National Commission on Farmers (2004) have recommended that the facility of regulated market should be available to the farmers within a radius of 5 Km.

Box 8.1 : Options for addressing supply-side constraints

- Given the compositional shift in food basket of a common household and its impact on consumption demand, improved supply response is critical for ensuring price stability in food items.
- Extension programmes and guidance to farmers regarding fertilizer and insecticide usage and alternate cropping pattern based on soil analysis could be undertaken and intensified.
- As a strategy, regular imports of agricultural commodities in relatively smaller quantities with an upper ceiling on total quantity could be considered. The upper ceiling can be decided annually, relatively well in advance, after assessing the likely domestic situation in terms of production and consumption requirements.
- Setting up special markets for specific crops in states/regions/areas producing those crops would facilitate supply of superior commodities to the consumers.
- Mandi governance is an area of concern. A greater number of traders must be allowed as agents in the mandis. Anyone who gets better prices and terms outside the Agricultural Produce Marketing Committee (APMC) or at its farm gate should be allowed to do so. For promoting inter-state trade, a commodity for which market fee has been paid once must not be subjected to subsequent market fee in other markets including that for transaction in other states. Only user charges linked to services provided may be levied for subsequent transactions.
- Perishables could be taken out of the ambit of the APMC Act. The recent episodes of inflation in vegetables and fruits have exposed flaws in our supply chains. The government-regulated mandis sometimes prevent retailers from integrating their enterprises with those of farmers. In view of this, perishables may have to be exempted from this regulation.
- Considering significant investment gaps in post-harvest infrastructure of agricultural produce, organized trade in agriculture should be encouraged and the FDI in multi-brand retail once implemented could be effectively leveraged towards this end.
- Government should step up creation of modern storage facilities for food grains.