IASbaba

[AGRICULTURE PRACTICES AND ISSUES-GS 3]

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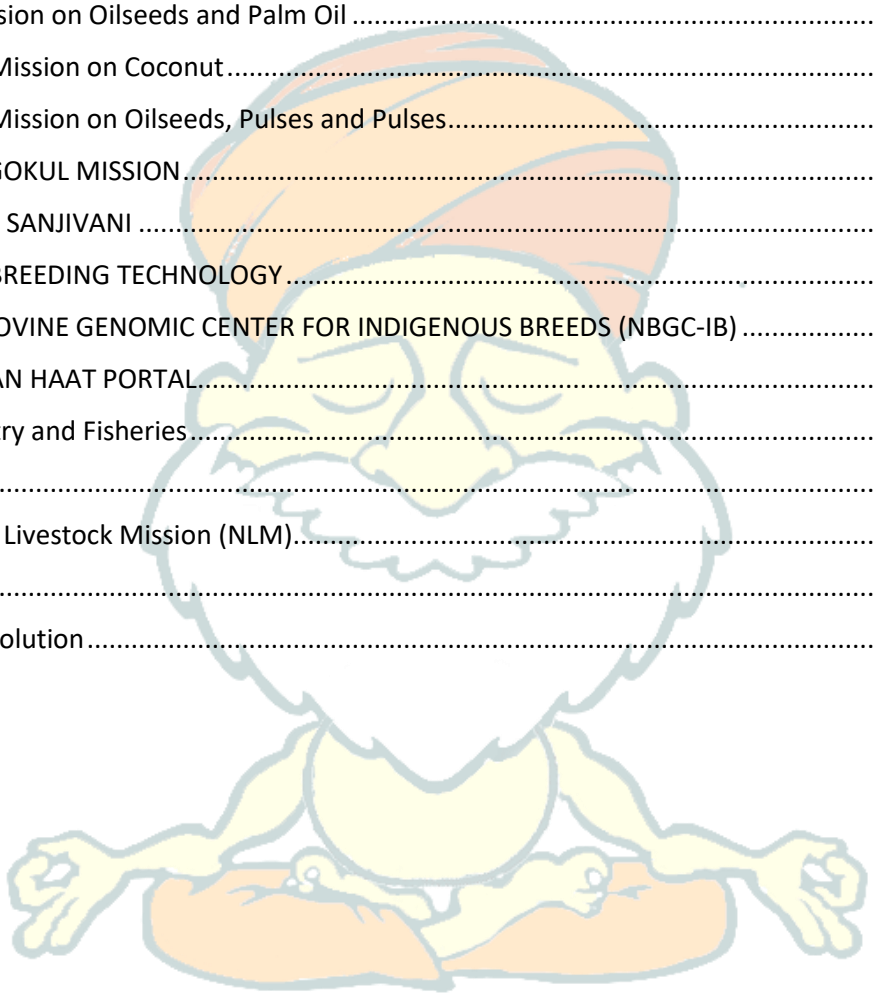


Agricultural Practices

Contract farming

Contract farming can be defined as agricultural production carried out according to an agreement between a buyer and farmers, which establishes conditions for the production and marketing of a farm product or products. Typically, the farmer agrees to provide agreed quantities of a specific agricultural product. These should meet the quality standards of the purchaser and be supplied at the time determined by the purchaser. In turn, the buyer commits to purchase the product and, in some cases, to support production through, for example, the supply of farm inputs, land preparation and the provision of technical advice.

Contract farming has been in India since the 1960s and an amendment to the APMC Act at State levels in the last decade has made it legal. It was widely adopted across a variety of crops, regions and companies.

In 2003, a Model Agricultural Produce Marketing (Regulation) Act was circulated by the central government to the States for implementing market reforms. It has provisions for registration of contract farming sponsors and recording of contract farming agreements with the APMC; protection of title or rights of farmers over the land under such contracts, dispute settlement mechanism and a model draft agreement suggesting various terms and conditions. Several State governments have made provisions in their APMC Acts for providing a legal framework to contract farming.

Contract farming has been co-opted by many States but there is no uniformity or homogeneity regarding the kinds of produce that can come under it and the conditions under which contract farming should be allowed.

Under contract farming, farmers can be given seeds, credit, fertilizers, machinery and technical advice so that their produce is tailor made for the requirements of the companies. There would be no middlemen involved and farmers would get a predetermined sale price from the companies. It sounds good and easy and the farmer does not have to make trips to the mandis nor worry about getting seeds and credit for farming operations. By entering into a contract, the farmer reduces the risk of fluctuating market demand and prices for his produce and the companies reduce the risk of non-availability of raw materials.

Contract farming can fill the gap of lack of investment and land improvement by supplying quality inputs, giving technical guidance and management skills. Punjab has had corporate faming for over 15 years and success stories range from Pepsico India in tomatoes, potatoes, groundnut and chilli, safflower in Madhya Pradesh, palm oil in Andhra Pradesh and seed production contracts for hybrid seed companies which helped growers in realizing better returns for their produce.

Problems:

- Problems arise in the case of very small and marginal farmers. They may not be roped in for this form of farming because companies may want a particular size of the crop which small farmers with their small parcels of land may not be able to produce. So, this will leave out the most vulnerable farmers from the ambit of corporate farming.
- Second, the medium size farmer may not be literate enough to understand the nitty gritty of the contract and all the clauses, and if the produce does not meet the standards of the company, he may face mass rejection. What would be his fate then? Where can he dispose of the produce? It will be like the export rejects that can be found in stores across India, but to sell perishable produce is quite another matter.
- Third, the farmer may be forced to produce only tomatoes or onions year after year which will lead to monoculture and he will have no options left to produce whatever mix of crops which he may think is good for his farm. His freedom will be curbed no doubt and this is a serious setback to the individual freedom of farmers and their rights.
- Fourth, predetermined prices do not take care of food inflation and in case there is a price rise of the product, the farmer cannot take advantage and make a windfall profit because he is under contract to sell at the price agreed upon beforehand.
- Fifth, the average farmer being poor and semi-literate has little bargaining power vis-à-vis big corporations and hence there is little chance of his getting a fair price for his produce.
- Sixth, should we let the corporate sector take over our agricultural operations? Wouldn't it affect the food security of the country? As its seeds production is largely controlled by multinational companies.
- Last, contract farming is best suited to special types of crops and not all farming activities. In China, only specific agricultural produce is under contract farming.

Note- NITI AYOG is preparing a policy on model contract-farming to benefit farmers in different states

"India ripe for contract farming": Prime Minister's Address to World while inaugurating World Food India

Pointers used by PM

- The country has the world's second-largest arable land area and 127 diverse agro-climatic zones
- Private sector participation has been increasing in many segments of the value chain. However, more investment is required in contract farming, raw material sourcing and to create agri linkages.

- Many international companies in India have taken a lead in contract farming initiatives. This is a clear opportunity for global supermarket chains to consider India as a major outsourcing hub.
- Emphasizing the importance of food-processing in "nutrition security", the Prime Minister said that apart from post-harvest management, "there is immense potential in niche areas such as organic and fortified foods", and suggested linking these with traditional foods such as coarse grains and millets, terming them "nutrition-rich and climate-smart" crops.
- "The perfect blend of hygienic, nutritious and tasty processed food, with the added benefits of preventive healthcare, can be produced economically here in India.
- Farmers are "central to our efforts in food processing", adding that to achieve the doubling of farm income within five years, the Pradhan Mantri Kisan Sampada Yojana must "leverage investments of $5 billion, benefit two million farmers and generate more than half-a-million jobs over the next three years".

Co-operative Farming

By the term 'Co-operative farming', we mean a kind of farming operations where agricultural practices were conducted by individuals on their own holdings jointly with certain common agencies formed on their behalf for the collection and purchase of agricultural inputs like seeds, fertilizers, equipment's etc. and also for the sale of their agricultural produce.

Features:

- Members pool their land, man-power and other resources in single unit
- Ownership of land continues to be with individual members only
- The society is formed voluntarily and is run on co-principles
- Members receive remuneration according to work done and land contributed for joint cultivation
- Members will have option to leave organization

Co-Operative Farming	
Benefits	**Causes of Failure**
• Reduces cost of production • Lack of administrative capabilities • Increases agricultural production • Increases agricultural production • Achieves economy of scale • Accessibility of services and technology • Consolidation of small units of land • Use of big machineries	• Indifference of state governments. • Lack of financial facilities • Lack of coordination • Lack of adaptability in farmers to use new means of farming • Lack of dedicated non-official leadership • Lack of administrative capabilities

Difference between cooperative and contract farming

Criteria	Cooperative farming	Contract farming
Objective	Production through consolidation of land holdings	Production through contracts
Credit availability	Availability through banks	Availability through banks and companies
Inputs for production	Cooperative society	Company
Income	Membership fee and percentage turnover	Sales
Customers	One or multiple	One or limited
Price mechanism	Supply and demand	Fixed prices

Subsidies

The word Subsidy is derived from the Latin word “Subsidium” which means to assist from behind, or give support. Subsidies are usually defined as money directly given by the government to businesses to encourage activities that it wishes to promote. The amount of the subsidy is often based on the amount of the goods or services provided.

The World Trade Organization (WTO) has a broader definition of subsidies. It considers a subsidy to be any financial benefit provided by a government that gives an unfair advantage to a specific industry, business or even individual. The WTO mentions following types of subsidies:

- Cash subsidies, such as the grants, cash and DBT, these can be given either to the producer or to the consumer.
- Tax concessions, such as exemptions, credits or deferrals.
- Assumption of risk, such as loan guarantees.
- Low interest government loans, either directly by the government or by government owned organizations.
- Government procurement policies that give more than the free-market price.
- Stock purchases that keep the company's stock price higher than market levels.
- If the government procures goods, such as food grains, at higher than market prices or if it sells as lower than market prices, subsidies are implied.

These are all considered subsidies because they reduce the cost of doing business.

Agricultural subsidies

These are the subsidies provided to the farmer either directly or indirectly to keep the input costs lower and prices higher so that farming remains a profitable sector. The agriculture subsidies keep the farmer as the end beneficiary and subsidies can be given to anyone whose inputs are used in the agriculture.

Agriculture subsidies can be categorized into Direct Subsidies and Indirect Subsidies or based on the different inputs needed during the different stages of cultivation. Based on this the following types of subsidies are given to Agriculture in India

- Input subsidies or production subsidies
- Price subsidies
- Credit Subsidies
- Infrastructure Subsidies

Input Subsidies

Subsidies can be distribution of inputs at prices that are less than the standard market price for these inputs. So, the amount of subsidy is the difference between the market price and the supply price.

Fertilizer Subsidy

Fertilizer accounts for large fiscal subsidies (about 0.73 lakh crore or 0.5 percent of GDP), the second-highest after food. The government budgeted R73,000 crore—about 0.5 per cent of GDP—on fertilizer subsidies in 2015-16. Nearly 70 per cent of this amount was allocated to urea, the most commonly used fertilizer, making it the largest subsidy after food.

Fertilizer subsidy has been kept at Rs70,000 crore for 2017-18 fiscal, even as the domestic industry was demanding higher allocation to clear subsidy arrears of about Rs35,000 crore.

In fertilizer subsidy, the government has allocated Rs 49,768 crore for urea and Rs 20,232 crore for decontrolled phosphoric and potassium (P&K) fertilizers.

Table 9.2: Basic fertiliser price facts (2014-15)

	Domestic Subsidised Price (₹/50kg)	International price (₹/50kg)	Subsidy (₹/50kg)	Import restriction	% of volume that is under movement control
DAP	1200	1810	**618**	None	20%
MOP	800	1300	**465**	None	20%
Urea	**270**	970	807	Canalised*	50%

Source: **Fertiliser Association of India (FAI)**

Note: numbers in bold are fixed by the government. The others are market prices.

* Only 3 firms allowed to import.

The subsidy provided for the fertilizer is largely arrogated to the Urea, which receives the subsidy in the form of Maximum Retail Price (MRP) at which urea must be sold to farmers, Subsidy to the producers and the importers and by canalization.

Reasons to give fertilizer subsidy:

1. Ensure low cost to the farmers.
2. Fixed profits for the manufacturers.
3. Price stability of the fertilizers, so that speculation is curtailed.

Nutrient Based Subsidy

Government has been implementing Nutrient Based Subsidy (NBS) Policy for decontrolled P&K fertilizers. Under this policy, the subsidy on Phosphatic and Potassic (P&K) fertilizers is announced by the Government on annual basis for each nutrient i.e., Nitrogen (N), Phosphorous (P), Potash (K) and Sulphur (S) on per kg basis which is converted into subsidy per tonne depending upon the nutrient content in each grade of the fertilizers.

These rates are determined taking into account the international and domestic prices of P&K fertilizers, exchange rate, inventory level in the country etc.

Macro-Micro Nutrients in Soil

Macronutrients: nitrogen (N), phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), and sulfur (S)

Micronutrients: boron (B), chlorine (Cl), copper (Cu), iron (Fe), manganese (Mn), molybdenum (Mo), zinc (Zn) and nickel (Ni) (1987).

Irrigation Subsidies

Every farm needs water for the cultivation of crop and to ensure the supply of water to the fields, the Government undertakes the construction of Dams, Canals, and Power generation units etc. which require substantial investments.

Subsidy in this case is the difference between operating and maintenance cost of irrigation infrastructure in the state and irrigation charges recovered from farmers. Through public utilities such as canals, dams which the government constructs and charges low prices or no prices at all for their use from the farmers

Another form of irrigation subsidy is provided through low priced private irrigation equipment such as pump sets.

Power Subsidies

Power is primarily used by the farmers for irrigation purposes and Government charges low rates for the electricity supplied to the farmers. The difference between the cost of generating and distributing electricity to farmers and price received from farmers; “acts as an incentive to farmers to invest in pump sets, borewells, etc. The power subsidies have had unintentional consequences in terms of over usage of electricity leading to deficiency of power in other sectors, excessive ground water exploitation which had led to lowering of water tables and water logging of the fields and changed cropping patterns, i.e, growing of water intensive crops.

Reforms: the government, to restore the ecological balance and to make agriculture sustainable has brought the following schemes:

- **DeenDayalUpadhyaya Gram Jyoti Yojana** – (Round the Clock Power to Rural Households & Adequate Power for Agriculture): it is a rural electricity segregation programme whereby separate feeders provide agricultural and non-agricultural consumers. It focuses on feeder separation (rural households & agricultural) and strengthening of sub-transmission & distribution infrastructure including metering at all levels in rural areas.
- **Energy-Efficient Irrigation Scheme:** It entails procuring 30 million sophisticated pump sets for farmers, the cost of which would be recovered through savings in the electricity consumed. This cost could be recovered by the end of the scheme period as the 37% annual reduction in power consumption to be achieved by farmers using the new equipment will lead to a cost saving of Rs.15,000 crore a year for power distribution companies and about Rs.5,000 crore for states that subsidize electricity to farmers. The scheme could save about 46 billion kWh of power a year and help in creating 20 lakh jobs, every unit of power saved is equal to 1.3 unit of power generated.

Credit Subsidy

Availability of credit is a major problem for poor farmers—cash strapped and cannot approach the credit market because they do not have the collateral needed for loans. To carry out production activities, they approach the local money lenders which are mostly exploitative

Credit subsidy is the difference between interest charged from farmers, and actual cost of providing credit, plus other costs such as write-offs bad loans.

Price Subsidies

To ensure some profits for the producer the government provides price Subsidy in the form of Minimum Support price (MSP). This is the price at which the government procures farm produce from the farmers signaling that the market prices should not fall below these prices.

Issues related to Subsidy in the farm sector

A subsidy is essentially defined as a converse of a tax. More formally, a subsidy (agricultural subsidy) is essentially a government influx of liquidity, paid to farmers and agribusinesses. Subsidies amounted to nearly 14% of India's GDP in 2015.

The key concerns regarding the subsidizing process still plaguing the system are as follows:

- **Subsidies do not reach the marginalized farmers:** The marginalized farmers, the main target audience for the government to come up with subsidies in the first place is found wanting of the same. Effectively, the more well-off farmers end up taking more than their fair share.
- **The fiscal burden on the government:** The government fails to recover its costs because of taxation issues and is thus led to borrow from other sources. Ineffective taxation policies end up taking their toll on the government's developmental plans.
- **The APMC Act:** The APMC act established mandis, where farmers auction their produce. The presence of middlemen, effectively multiplied prices at each level which thus led to higher prices and lower profits for the farmers.
- **Lowering of water table:** Many of the states provide free electricity to the farmers, this had led to over use of electricity, use of inefficient pumps and consequently lowering of the water table. This has caused serious water shortages in many of the states.
- **Skewed fertilizer usage:** Due to higher subsidy being provided to the Urea, more farmers are using more and more of Urea, this is detrimental not only to the environment but also to the crops, as more urea is needed in the next season to sustain the same level of agriculture production.

Agriculture Price Policy

Government's price policy seeks to ensure remunerative prices to the farmers for their produce with a view to encourage higher investment and production and to safeguard the interest of the consumers by making available supplies at reasonable prices.

The price policy also seeks to evolve a balanced and integrated price structure in the perspective of overall needs of the economy. Towards this end, the Government fixes the Minimum Support Price (MSP) for major agricultural commodities viz. paddy, jowar, bajra, maize, ragi, arhar (tur), moong, urad, cotton, groundnut-in-shell, sunflowerseed, soyabean, sesamum, nigerseed, wheat, barley, gram, masur (lentil), rapeseed/mustard, safflower, copra and Jute and Fair and Remunerative Price (FRP) for sugarcane, taking into account the recommendations of the Commission for Agricultural Costs and Prices (CACP), the views of State Governments and Central Ministries as well as other concerned stake holders.

Minimum Support Price

Minimum Support Price (MSP) is a form of market intervention by the Government of India to insure agricultural producers against any sharp fall in farm prices. The Cabinet Committee of Economic Affairs announces MSP for various crops at the beginning of each sowing season based on the recommendations of the Commission for Agricultural Costs and Prices (CACP).

MSP is price fixed by Government of India to protect the producer - farmers - against excessive fall in price during bumper production years. The minimum support prices are a guarantee price for their produce from the Government. The major objectives are to support the farmers from distress sales and to procure food grains for public distribution. In case the market price for the commodity falls below the announced minimum price due to bumper production and glut in the market, govt. agencies purchase the entire quantity offered by the farmers at the announced minimum price.

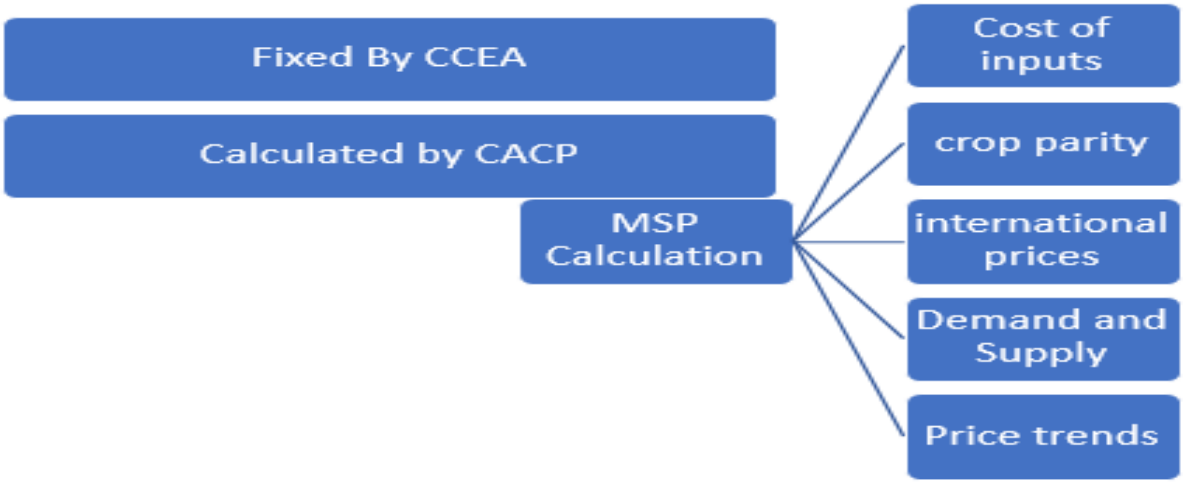
Minimum support prices are currently announced for 26 commodities including seven cereals (paddy, wheat, barley, jowar, bajra, maize and ragi); five pulses (gram, arhar/tur, moong, urad and lentil); eight oilseeds (groundnut, rapeseed/mustard, toria, soyabean, sunflower seed, sesamum, safflower seed and nigerseed); copra, raw cotton, raw jute and virginia flu cured (VFC) tobacco.

Such minimum support prices are fixed at incentive level, so as to induce the farmers to make capital investment for the improvement of their farm and to motivate them to adopt improved crop production technologies to step up their production and thereby their net income. In the absence of such a guaranteed price, there is a concern that farmers may shift to other crops causing shortage in these commodities.

Calculation of MSP:

The CACP while recommending the MSP takes into account a comprehensive view of the entire structure of the economy of a particular commodity or group of commodities which includes cost of production, changes in input prices, input-output price parity, trends in market prices, demand and supply, inter-crop price parity, effect on industrial cost structure, effect on cost of living, effect on general price level, international price situation, parity between prices paid and prices received by the farmers and effect on issue prices and implications for subsidy.

The Commission makes use of both micro-level data and aggregates at the level of district, state and the country.



Importance of MSP

Price volatility makes life difficult for farmers. Though prices of agri commodities may soar while in short supply, during years of bumper production, prices of the very same commodities plummet. MSPs ensure that farmers get a minimum price for their produce in adverse markets. MSPs have also been used as a tool by the Government to incentivize farmers to grow crops that are in short supply.

But while this sounds good in theory, it has not worked perfectly in practice. Yes, India's food grain crops have seen sharp increases in acreage in the last few years and the Centre's buffer stocks now exceed the minimum norms in rice and wheat, after many years of increases in MSP.

In pulses and oilseeds though, increases in MSP have not proved as effective with production struggling to keep up with demand. This appears to be because actual procurement by Central agencies has been low. NAFED, for instance, procured only 3.21 per cent of kharif oilseeds in 2014-15 season. There is thus a call for the Centre to walk the talk by procuring sizeable quantities at the MSP.

Trends in MSP impact the availability of key food crops and food inflation. MSP is also good tool to ensure that farmers produce what is most lucrative for them, given consumer demand.

In recent years, there have been large-scale imports of pulses and oil seeds into India with high costs adding to Consumer Price inflation. Unless the Centre increases State procurement of these crops, the bias towards rice, wheat and sugarcane (where minimum prices are fixed by States) may continue.

NITI Aayog report on MSP

NITI Aayog has come out with a report on the efficacy of minimum support price for farmers. It observes that:

a) Awareness and Satisfaction: Although 81% of the farmers knew about MSP, 79% of them were not satisfied with the prices
b) Timing: Only 10% of the farmers came to know about MSP before the sowing season
c) Also, only 7% of the farmers came to know of MSP through official sources, This prohibited them from making informed choices

The Niti Aayog study also found out that 32.13%, 41.29% and 27.4% of the farmers received their MSP payment through in cash, cheque and in the shape of bank deposit. 94% of the farmers covered under the study wanted MSP to continue.

The NITI Aayog has proposed a shift from the minimum support price (MSP) driven procurement of wheat, rice and sugarcane to the subsidy-driven mechanism for encouraging farmers to opt for crops in which India is not yet self-sufficient. The think-tank panel has blamed the politically sensitive MSP policy for having distorted the cropping patters in the country.

The think tank has proposed the government should adopt the system of “Price Deficiency Payment” against MSPs without unnecessarily going for procurements. While MSPs may still be used for need-based procurement, under the price deficiency payment, a subsidy may be provided to farmers on other targeted produce, contingent on prices falling below an MSP-linked threshold. The move has apparently come after reports emerged from various parts of the country that after bumper crops of pulses farmers could not get MSPs due to weak procurement mechanism following which they had to consider distress selling.

Fair and Remunerative Price (FRP)

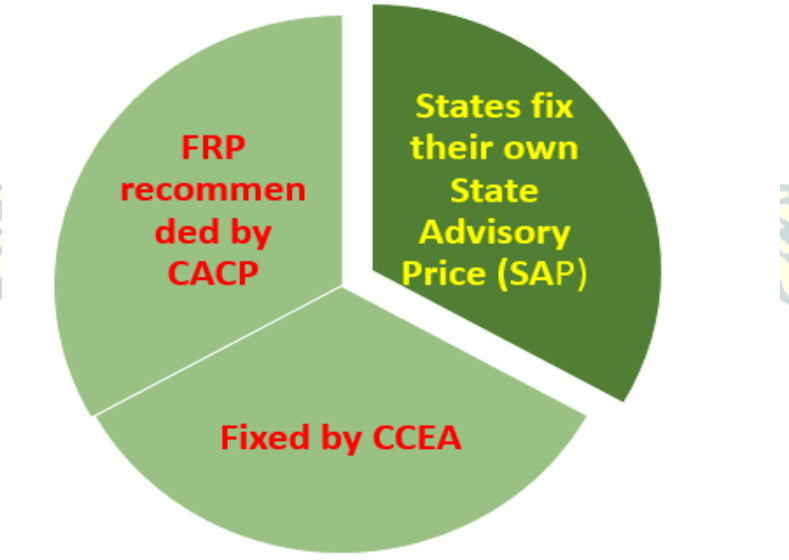
The FRP is the minimum price that sugarcane farmers are legally guaranteed. It is fixed by the Cabinet Committee on Economic Affairs (CCEA).

FRP of sugarcane has been determined on the basis of recommendations of Commission for Agricultural Costs and Prices (CACP) and after consultation with State Governments and other stake-holders. The 'fair and remunerative price' of Sugarcane is determined under the Sugarcane (Control) Order 1966. Recommended FRP has been arrived at by taking into account various factors such as cost of production, overall demand-supply situation, domestic and international prices, inter-crop price parity, terms of trade prices of primary by-products, and likely impact of FRP on general price level and resource use efficiency.

State governments are free to fix their own state advised price (SAP) and millers can offer any price above the FRP. Major sugarcane producing states like Uttar Pradesh, Punjab and Haryana fix their own sugarcane price called 'state advisory prices' (SAP), which is usually higher than the Centre's FRP.

Sugarcane output in the current year declined by over 12 per cent to 306.03 million tonnes due to drought in key growing states Maharasthra and Karnataka.

Note- The government has increase the fair and remunerative price (FRP) of sugarcane by Rs. 25 per quintal to Rs. 255 for 2017-18 season beginning October.



FAIR AND REMUNERATIVE PRICES

Issues of Pricing in Agriculture

Since the Reforms of 1991, which opened Indian economy to the rest of the world, and integrated it with the world economy, the exports of agriculture have increased substantially, however there have been impediments to this integration in the form of Export Ban and banning of Hoarding of grains by private entities beyond prescribed levels, But the major policy impediment has been the Mechanism of Minimum Support Price (MSP) in agriculture commodities. Though the primary aim is to protect the farmer in case of a bumper harvest, yet this is insufficient as it covers only 26 commodities and the horticulture crops are excluded from the MSP.

MSP is viewed as a form of market intervention by the central government and as one of the supportive measures (safety nets) to the agricultural producers i.e. farmers. This has also a strong linkage to factor market of the agriculture and related sector.

Objectives of MSP

- To provide a safety net to the farmer by ensuring price stability and guaranteed remuneration.
- Increasing the availability and access to food for the common people.
- Develop a cropping pattern which is in line with the developmental needs of the country.
- Increasing the buffer stock so that food grains can be made accessible in times of emergencies and shortages

Criticism of Minimum Support Price Policy

- Uneven dissemination of Information, only 6% of the farmers had the information of new prices before sowing
- Incentive structure is highly uneven; cereals get more preference than pulses.
- Consumers face sharp price rise which may have been created by monsoon failure or artificial scarcity.
- MSP only helps farmers in Surplus Producing States, other states farmers are deprived of the benefits
- Even after the announcements of MSP, the market prices in many mandis fall below MSP due to supply glut.
- It is often said that increase in MSP will increase the retail inflation.
- According to the National Sample Survey's (NSS) Situation Assessment Survey of Agricultural Households 2013, even for paddy and wheat, less than one-third of farmers were aware of the MSP.

Public Distribution Systems (PDS) in India

Objective

Government of India is committed to ensure food security for all and to make available essential commodities to vulnerable section at reasonable cost round the year through Public Distribution System (PDS). With this objective in mind the PDS was reorganized in 1997 with its focus on the poor whereby the population Below Poverty Line (BPL) will be given 20 kg of food grains per month per family at 50 per cent of economic cost. This will benefit an estimated 33 crore of people living Below Poverty Line (BPL) in the country while the population above Poverty Line (APL) will continue to get food grains at economic cost through the fair price shops.

- Till 1992, PDS was a general entitlement scheme for all consumers without any specific target.
- But in 1992, PDS became RPDS (Revamped PDS) focusing the poor families, especially in the far-flung, hilly, remote and inaccessible areas.
- In 1997 RPDS became TPDS (Targeted PDS) which established 'Fair Price Shops' for the distribution of food grains at subsidized rates.

PDS Functioning

A well-targeted and properly functioning Public Distribution System (PDS) is an important constituent of our food security. The Targeted Public Distribution System (TPDS) with its focus on "poor in all areas" envisages issue of 35 Kg of food grains per family per month for the population Below Poverty Line (BPL) at specially subsidized prices. Under TPDS, the States are required to formulate and implement foolproof arrangements for identification of poor, for delivery of food grains to Fair Price Shops (FPSs) and for its distribution in a transparent and accountable manner at the FPS level. The thrust is to include only the really poor and vulnerable sections of society. The National Agenda for Governance seeks to reform and improve the Public Distribution System so as to serve the poorest of the poor in rural and urban areas.

Limitations of PDS

Procurement of food grains in a few States led to many problems with regard to the levy of taxes, storage and transportation to different centers. This resulted in heavy transit losses.

As the major food deficit States are located in the North-East and far south, transportation of food grains from Punjab and Haryana to these States put enormous pressure on rail traffic besides causing huge expenditure on transportation cost and losses on account of transit, storage and pilferage.

Post-harvest grain losses have become more pronounced due to food scarcity conditions arising out of vagaries of weather and fluctuation in production levels.

Farmers retain roughly 70% of the food grains for food, feed or seed purpose. Of the balance 30% is traded and marketed. About 50% is handed by the public sector (the Food Corporation of India assisted by various State agencies) and the rest goes to private trade. A considerable loss of food grains, both in quality and quantity, takes place at farm level.

Challenges in PDS

- **Allocation**
  1. Non –availability /delay of utilization information to the Centre from States.
  2. Non -availability / delay of closing balance details and updated card status at State level from the districts, block and FPS levels.
  3. Inaccurate data reporting by FPS
  4. Longer time taken for allocation cycle
- **Movement**
  1. Absence of truck tracking system leading to delayed delivery, diversions, siphoning etc.
  2. Non-standard transportation rates
  3. Cartel formation by transporters
  4. Late submission of demand drafts/cash by FPS for lifting leads to sub optimal route planning.
- **Storage and Quality Control (QC):**
  1. Non-availability of stock positions in few states leads to inappropriate allocation and excess stock build up at intermediary storage points.
  2. Poor quality of packaging leads to loss of food grains
  3. Extensive use of hooks leads to spillage
  4. Insufficient godown capacity of intermediate storage points result in multiple shipments
  5. Temperature fluctuations due to weather leads to variations in weight of food grains
  6. Loss of food grains due to infestation
  7. Manpower shortage leads to delay in dispatches and noncompliance to policies.
- **Finance:**
  1. Poor financial condition of FPS and GPSS /WCCS (in Assam)
  2. Cost and time incurred on preparation of multiple DDs by FPS results in increased financial burden on the FPS/GPSS
- **Grievance Redressal:**
  1. Absence of response and monitoring mechanism because of which, higher authorities are unaware of number and status of grievances registered and thus grievances are not getting resolved on time
  2. The service level agreements for grievance redressal are not clearly defined

3. Bogus complaints result in wastage of officials' time
4. Lack of integration between various complaint and registration channels leads to multiplications at different levels

PDS Reforms

1. Direct Benefit Transfer by linking AADHAR:

- Starting with Jharkhand and Puducherry, many states had made it mandatory to open an AADHAR linked bank account for the transfer of kerosene subsidy. The use of direct transfer was expected to eliminate a lot of wasteful expenditure, corruption and leakages, which would lead to much better targeting of funds for the needy.
- Under DBT, the government transfers financial entitlements to beneficiaries' Aadhaar-linked bank account. The person can withdraw money only after undergoing an Aadhaar-based online authentication using finger print or eye scan.
- The Economic Survey for 2016-17 said 36% and 20% of Public Distribution System (PDS) and MGNREGS funds leak from the system and can be saved by application of Aadhaar.
- The report quoted the government's Direct Benefit Transfer portal to say that Rs 14,000 crore was saved in the provision of food subsidies by removing 23.3 million fake beneficiaries and the corresponding figure for cooking gas subsidies was Rs 26,000 crore with 35 million duplicates removed.
- The government is ready with a system that will directly transfer benefits in the public distribution system (PDS) after it tasted success in such subsidy transfer for liquefied petroleum gas. The PDS is administered by the state governments and they will be able to use this system by the end of this year.
- This will help government check leakages worth 30-40% of the total food subsidy given through the PDS, Currently, only the Union territories of Chandigarh and Puducherry use DBT in PDS. The Aadhaar-based transfer could be either through cash or collection of food grains from ration shops through biometric authentication.
- The savings from DBT of food subsidy is expected to be much larger than that for LPG. According to budget estimates, India's food subsidies for the 2015-16 will be Rs.1.24 trillion. So, if government manages to save 40% of the subsidy, it will be around Rs.50,000 crore annually.

2. Converting Targeted PDS to Universal PDS:

Tamil Nadu and Chhattisgarh have had success in following this scheme. (CPI recommends this idea too) It will help with: 1) Nullifying the requirement to identify the poor.(Although to a

certain extent this has to be done and can be managed by using Aadhar). 2) It may reduce leakages to private retail since everyone will be able to buy from the FPS.

3. Computerized Fair Price Shops:

FPS automated by installing 'Point of Sale' device to swap the ration card. It authenticates the beneficiaries and records the quantity of subsidized grains given to a family.

4. Use of GPS technology:

Use of Global Positioning System (GPS) technology to track the movement of trucks carrying foodgrains from state depots to FPS which can help to prevent diversion.

5. SMS-based monitoring:

Allows monitoring by citizens so they can register their mobile numbers and send/receive SMS alerts during dispatch and arrival of TPDS commodities

6. Use of web-based citizens' portal:

Public Grievance Redressal Machineries, such as a toll-free number for call centers to register complaints or suggestions.

Further reading- Click Here

Issue of Buffer Stock

The buffer stocks are required to feed TPDS and other welfare schemes, ensure food security during the periods when production is short of normal demand during bad agricultural years; and (iii) stabilize prices during period of production shortfall through open market sales. The total annual stock of food grains in the Central Pool is distributed over different quarters of the year depending upon offtake and procurement patterns. The seasonality of production and procurement is thus a decisive factor in determining the minimum norm of food grains stocks required in a particular quarter of the year. For working out buffer stocking norms and making recommendations for policy decisions, the Government has been setting up from time to time Technical Groups under the Chairmanship of Union Food Secretary. The last buffer stock strategic standards norms were set in 2005. Government maintains buffer stocks of wheat and rice in the Central Pool.

Strategic reserve of food grains

As per buffer norms and in order to ensure food security in the country, Government has decided that a strategic reserve of 50 lakh tonnes of foodgrains would be maintained by Food Corporation of India (FCI). The strategic reserve is to be built up over a period of time starting from 2008-09. The stock of food grains in the Central Pool including strategic reserve would be kept in the available godowns/ additional godowns proposed to be constructed by the FCI and State agencies. The cost of maintaining the strategic reserve would be borne by the Government of India in the form of subsidy.

TPDS

The Government has allocates food grains @ 35 kg per family per month for Below Poverty Line (BPL) including Antyodaya Anna Yojana (AAY) category under Targeted Public Distribution System (TPDS). In addition, the Government makes a special ad-hoc additional allocation @ 10 kg of foodgrains per family per month for all accepted number of BPL, AAY and APL families to check inflationary trend in the economy.

Issues with Buffer Stocks of Food grains in India

1. Contradictions in the policy approaches:

42% percent of our little children are malnourished while India's godowns are bursting with food grain. There are glaring contradictions in India's policy approach towards buffer stock management. Subsidies on food and agriculture have shot up and bumper crops have been harvested. Despite that food prices in key staple commodities have continuously increased. Farmers are being paid more than double than 10 years ago. Still they are committing suicide. Exporters of food grains and agriculture commodities have been making huge profits at the cost of national exchequer loses.

2. An artificial shortage

India has bumper crops every year; 259.32 million tonnes in 2012-13 and have enormous buffer stocks. The Food Corporation of India expects to procure some 50 million tonnes of wheat this rabi season, stocks may touch a mark of 100 million tonnes. Stockpiling by the FCI has led to an artificial shortage of wheat despite bumper crops. This lead to rise in domestic prices dramatically. There is no sense in building up such massive stocks at a huge cost to the economy and burden on consumers.

3. Low per capita availability

Per capita availability of food grain stands at 462.9 gm in 2011 which is less than 170 kg per person per year. The average food availability for 2006-10 was 404.62 gm per capita. Declining per capita availability of food grain has been a severe problem to the livelihood of the general masses in India which is admitted in the Economic survey for 2012-13.

4. Storage Capacity

Huge amount of food grains keep laying in open sky in agriculture affluent states such as Punjab, Haryana and UP; at the same time the previous stock keep on rotting. The warehousing system of the food grains in India is highly inadequate and inefficient and ineffective. The Ministry of Consumer Affairs, Food & Public Distribution has taken a number of initiatives to create additional food grain storage capacity which include 152.97 lakh ton capacity in 19 states through private entrepreneurs and central and state ware housing corporations. Steps have also been taken for construction of godowns in North eastern region with a cost of Rs 568.17 crores to stock food grains in the region and speedy movement of food grains from procuring states to distribution centres.

5. Export of Surplus Food grains

The export of food grains depends on availability of surplus over and above the requirement of buffer stock including strategic reserve, international demand and supply situation, quality standards in the importing countries, varieties traded and price competitiveness. The Empowered Group of Ministers (EGOM) on Food takes into account various factors including the stocks of food grains available in the country, surplus over and above the buffer stock norm and strategic reserve requirements, the concerns of food security, availability of food grains to common man at reasonable price and remunerative prices to the grower, on a continuous basis and decides on the export of food grains as and when required

6. Problem with exports: Unable to manage the stocks, the government resorts to exports at subsidized rates which only benefit the traders. Given that the economic cost of wheat is Rs. 19,100 (per metric tonne) and the minimum export price for wheat fixed by the government is in the region of Rs. 16,200, the losses are estimated at Rs 1,700 crore for the previous year. Global prices have tumbled in the past week below the government fixed minimum export price of $300 a metric tonne to about $270.

Food Security

India being the second most populated country in the world, providing food security to all the citizens is a major policy concern. The percentage of population consuming diets providing less than 2400 kcal (underlines definition of below poverty line) per capita per day is almost 77% of the rural population. Poverty is concentrated and food deprivation is acute in predominantly rural areas with limited resources such as rain-fed agricultural areas. Food sector as a whole has also been supported in the current budget with higher provision for food subsidies, market intervention and imports. These will help in attaining food security for all and containing food inflation. The National Food Security Mission, a scheme intended to bridge yield gaps of major crops, has been provided Rs.2,250 crore. It was launched in October 2007.

The government has earmarked Rs 1,45,338.60 crore for food subsidy in the next fiscal as against Rs 1,35,172.96 crore in the revised estimate of this fiscal.

National Food Security Act 2013

Salient features:

- **Coverage and entitlement under Targeted Public Distribution System (TPDS):** Up to 75% of the rural population and 50% of the urban population will be covered under TPDS, with uniform entitlement of 5 kg per person per month. However, since Antyodaya Anna Yojana (AAY) households constitute poorest of the poor, and are presently entitled to 35 kg per household per month, entitlement of existing AAY households will be protected at 35 kg per household per month.
- **State-wise coverage:** Corresponding to the all India coverage of 75% and 50% in the rural and urban areas, State-wise coverage will be determined by the Central Government. Planning Commission has determined the State-wise coverage by using the NSS Household Consumption Survey data for 2011-12.
- **Subsidised prices under TPDS and their revision:** Food grains under TPDS will be made available at subsidised prices of Rs. 3/2/1 per kg for rice, wheat and coarse grains for a period of three years from the date of commencement of the Act. Thereafter prices will be suitably linked to Minimum Support Price (MSP).
- In case, any State's allocation under the Act is lower than their current allocation, it will be protected upto the level of average offtake under normal TPDS during last three years, at prices to be determined by the Central Government. Existing prices for APL households i.e. Rs. 6.10 per kg for wheat and Rs 8.30 per kg for rice has been determined as issue prices for the additional allocation to protect the average offtake during last three years.

- **Identification of Households:** Within the coverage under TPDS determined for each State, the work of identification of eligible households is to be done by States/UTs.
- **Nutritional Support to women and children:** Pregnant women and lactating mothers and children in the age group of 6 months to 14 years will be entitled to meals as per prescribed nutritional norms under Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) schemes. Higher nutritional norms have been prescribed for malnourished children upto 6 years of age.
- **Maternity Benefit:** Pregnant women and lactating mothers will also be entitled to receive maternity benefit of not less than Rs. 6,000.
- **Women Empowerment:** Eldest woman of the household of age 18 years or above to be the head of the household for the purpose of issuing of ration cards.
- **Grievance Redressal Mechanism:** Grievance redressal mechanism at the District and State levels. States will have the flexibility to use the existing machinery or set up separate mechanism.
- **Cost of intra-State transportation & handling of foodgrains and FPS Dealers' margin:** Central Government will provide assistance to States in meeting the expenditure incurred by them on transportation of food grains within the State, its handling and FPS dealers' margin as per norms to be devised for this purpose.
- **Transparency and Accountability:** Provisions have been made for disclosure of records relating to PDS, social audits and setting up of Vigilance Committees in order to ensure transparency and accountability.
- **Food Security Allowance:** Provision for food security allowance to entitled beneficiaries in case of non-supply of entitled food grains or meals.
- **Penalty:** Provision for penalty on public servant or authority, to be imposed by the State Food Commission, in case of failure to comply with the relief recommended by the District Grievance Redressal Officer.

Swaminathan Committee Report recommendations on Food Security

- Implement a universal public distribution system. The National Commission on Farmers pointed out that the total subsidy required for this would be 1% of GDP.
- Reorganize the delivery of nutrition support programmes on a life-cycle basis with the participation of Panchayats and local bodies.
- Eliminate micronutrient deficiency induced hidden hunger through an integrated food cum fortification approach.
- Promote the establishment of Community Food and Water Banks operated by Women Self-help Groups (SHG), based on the principle 'Store Grain and Water everywhere'.

- Help small and marginal farmers to improve the productivity, quality and profitability of farm enterprises and organize a Rural Non-Farm Livelihood Initiative.
- Formulate a National Food Guarantee Act continuing the useful features of the Food for Work and Employment Guarantee programmes. By increasing demand for food grains as a result of increased consumption by the poor, the economic conditions essential for further agricultural progress can be created.

Buffer stock

Food grain stocking norms refers to the level of stock in the Central Pool that is sufficient to meet the operational requirement of food grains and exigencies at any point of time. Earlier this concept was termed as **Buffer Norms and Strategic Reserve.**

Presently stocking norms fixed by Government of India:

1. **Operational stocks:** for meeting monthly distributional requirement under TPDS and OWS.
2. **Food security stocks/reserves**: for meeting shortfall in procurement.

Stocking norms are for a quarter and consist of operational stock for the quarter and strategic reserve to take care of short fall in production or natural calamities. The Buffer norms are the minimum food grains the Centre should have in the Central pool at the beginning of each quarter to meet requirement of public distribution system and other welfare measures.

Foodgrains Stocking Norms

Buffer Norms w.e.f. 01.07.2017

(Figure in lakh MT)

As on	Operational Stock			Strategic Reserve		Grand Total
	Rice	Wheat	Total	Rice	Wheat	
1st April	115.80	44.60	160.40	20.00	30.00	210.40
1st July	115.40	245.80	361.20	20.00	30.00	411.20
1st October	82.50	175.20	257.70	20.00	30.00	307.70
1st January	56.10	108.00	164.10	20.00	30.00	214.10

The Cabinet Committee on Economic Affairs fixes the minimum buffer norms on quarterly basis: i.e as on 1st April, 1st July, 1st October and 1st January of every financial year.

While four months requirement of food grains for issue under TPDS and OWS are earmarked as operational stocks, the surplus over that is treated as buffer stock and physically both buffer and operational stocks are merged into one and are not distinguishable. According to the present practice, the GOI treats the food stock over and above the minimum norms as excess stock and liquidates them from time to time through exports, open market sales or additional allocations to states.

Technology Missions

In 1987, Prime Minister Rajiv Gandhi appointed Sam Pitroda advisor to the Prime Ministor on National Technology Missions. Together, Pitroda and Gandhi decided these missions would focus on five critical areas:

- Drinking water
- Immunizations
- Literacy
- Oil seeds
- Telecommunications

They later added a sixth:

- Dairy production

In Agriculture:

Technology Missions can be simply referred to mission-mode projects which aim at rejuvenating agricultural sector & its sub-sectors via technological enhancements. Techniques adapted for such purposes are generally mechanistic, and support is provided by Government to procure such advancements by ways of subsidy, promotion, credit-linked subsidy, soft loans, etc. ex: Mission on citrus fruits, coconut, oilseeds. They try to induce the use of modern technology in a specific field so that the whole process of production in that field becomes streamlined and the efficiency is increased.

Agricultural productivity has a positive correlation with level of farm mechanization. For accelerated growth in farm mechanization in the current decade, there is a need to include the large community of small and marginal farmers into the fold of cost effective and remunerative mechanized farming, to help sustain desired agricultural growth and to enhance agricultural productivity.

National Agriculture and Technology Mission (NMET)

The government is giving requisite importance for technology transfer by giving assistance in strengthening of Agriculture Extension Machinery of the State Governments for Agriculture extension mission budgetary allocation in 2015-16 is Rs. 598 cr. against the previous allocation of Rs. 635 cr, it is an increase of 6%. Apart from this, Rs. 40 cr has been allocated for strengthening of agriculture information system.

Mission for Integrated Development of Horticulture (MIDH)

It subsumes various schemes on Horticulture viz. National Horticulture Mission (NHM), Horticulture Mission for North East and Himalayan States (HMNEH), National Bamboo Mission (NBM), National Horticulture Board (NHB), Coconut Development Board (CDB)

The wide and varied nature of horticulture sector covering fruits, vegetables, root and tuber crops, flowers, aromatic and medicinal crops, spices and plantation crops facilitates better returns per unit of area besides opportunities for diversification in agriculture. India continued to be second largest producer of vegetables after China.

Interventions in horticulture in the country, have led to increase per capita availability of fruits from 133 gm/person/ day in 2004-05 to 195 gms/person/day in 2015-16. Similarly, per capita availability of vegetables has increased form 264 gm/ person/day in 2004-05 to 355 gm/person/day in 2015-16.

National Mission for Sustainable Agriculture (NMSA)

National Mission for Sustainable Agriculture (NMSA) seeks to transform Indian agriculture into a climate resilient production system through suitable adaptation and mitigation measures in domains of both crops and animal husbandry. NMSA as a programmatic intervention focuses on promotion of location specific integrated/composite farming systems; resource conservation technologies; comprehensive soil health management; efficient on-farm water management and mainstreaming rain-fed technologies.

NMSA identifies 10 key dimensions namely seed & culture water, pest, nutrient, farming practices, credit, insurance, market, information and livelihood diversification for promoting suitable agricultural practices that covers both adaption and mitigation measures through four functional areas, namely, Research and Development, Technologies, Products and Practices, Infrastructure and Capacity building. During XII Five Year Plan, these dimensions have been embedded and mainstreamed into Missions/Programmes/Schemes of Ministry of Agriculture including NMSA through a process of restructuring of various schemes/missions implemented during XI Five Year Plan and convergence with other related programmes of Central/State Governments.

It aims at promoting sustainable agriculture through a series of adaptation measures focusing on ten key dimensions encompassing Indian agriculture namely; 'Improved crop seeds, livestock and fish cultures', 'Water Use Efficiency', 'Pest Management', 'Improved Farm Practices', 'Nutrient Management', 'Agricultural insurance', 'Credit support', 'Markets', 'Access to Information' and 'Livelihood diversification'. The focus of NMSA will be to infuse the judicious utilization of resources of commons through community based approach.

NMSA will cater to key dimensions of 'Water use efficiency', 'Nutrient Management' and 'Livelihood diversification' through adoption of sustainable development pathway by progressively shifting to environmental friendly technologies, adoption of energy efficient equipments, conservation of natural resources, integrated farming, etc. Besides, NMSA aims at promoting location specific improved agronomic practices through soil health management, enhanced water use efficiency, judicious use of chemicals, crop diversification, progressive adoption of crop-livestock farming systems and integrated approaches like crop-sericulture, agro-forestry, fish farming, etc.

National Mission on Agricultural Extension & Technology

A new strategy is being formulated for farm mechanization during the Twelfth Five Year Plan. The National Mission on Agricultural Extension and Technology (NMAET) which encompasses extension, Information Communication Technology (ICT), Seeds, Agricultural Mechanization and Plant Protection aims to restructure & strengthen agricultural extension to enable delivery of appropriate technology and improved agronomic practices to the farmers through interactive methods of information dissemination, use of ICT, capacity building & institution strengthening; to improve reach of farm mechanization to small and marginal farmers by various means including promotion of custom hiring centers; to make available quality seeds and increase Seed Replacement Ratio and to promote Integrated Pest Management and plant protection measures.

Most components of the Mission are implemented through State Governments. However, some regulatory and administrative components like pesticide registration & quarantine regulation; national institutes, Mass Media, Kisan Call Centre & SMS Portal are implemented centrally. Farmers' centric extension activities under various Sub-Missions & other Schemes/Programmes are being converged at the level of Agricultural Technology Management Agency (ATMA).

Public-Private-Partnership is encouraged in the Extension and Training components of the Mission. Genuine and reputed Non-Governmental Organisations (NGOs), para-extension workers, Farmers Organizations etc. are encouraged to participate and provide extension and training services and guidance to farmers to improve agricultural production and productivity. Besides this input dealers and-agripreneurs are also trained to give advisories to the farmers.

The aims & objectives of the proposed Sub Mission on Agricultural Mechanization (SMAM) under National Mission on Agricultural Extension & Technology are as under:

1. Increasing the reach of farm mechanization to small and marginal farmers;
2. Establishment of 'Custom Hiring Centre' to offset the adverse economies of scale arising due to small landholding and high cost of individual ownership.
3. Passing on the benefit of hi-tech, high value and hi-productive agricultural machinery to farmers through creating hubs for such farm equipment;
4. Promotion farm mechanization through demonstration and capacity building activities;
5. Ensuring quality control of newly developed agricultural machinery.

National Horticulture Mission

- A National Horticulture Mission was launched in 2005-06 as a Centrally Sponsored Scheme to promote holistic growth of the horticulture sector through an area based regionally differentiated strategies.
- The Scheme has been subsumed as a part of Mission for Integration Development of Horticulture (MIDH) during 2014-15.

National Mission on Oilseeds and Palm Oil

- NMOOP envisages increase in production of vegetable oils sourced from oilseeds, oil palm & tree borne oilseeds. The Mission is implemented through three Mini Missions (Oilseeds, Oil Palm & TBOs) with specific targets.
- The strategy includes increasing Seed Replacement Ratio with focus on varietal replacement; increasing irrigation coverage; diversification of area from low yielding cereals; intercropping; use of fallow land; expansion of cultivation in watersheds & wastelands; increasing availability of quality planting materials; enhancing procurement of oilseeds and collection & processing of TBOs.

Technology Mission on Coconut

- The Mission was launched to converge & synergize all the efforts through integration of existing programs & address the problems and bridge the gaps through appropriate programs in mission mode to ensure adequate, appropriate, timely & concurrent action to make coconut farming competitive & to ensures reasonable returns.

Technology Mission on Oilseeds, Pulses and Pulses

The Mission was launched 1986 to increase the production of oilseeds to reduce import and achieve self-sufficiency in edible oils. Subsequently, pulses, oil palm & maize were also brought within the purview of the Mission.

Schemes under TMOP are:

- Oilseeds Production Program
- National Pulses Development Project
- Accelerated Maize Development Program
- Post-Harvest Technology
- Oil Palm Development Program
- National Oilseeds and Vegetable Oil Development Board

Animal Husbandry and Dairy Sector

Livelihood of 60 million rural households depends upon dairy sector. Out of this, two third are small, marginal and landless laborers. India is a global leader amongst dairying nations and produced 160.35 million tons of milk during last year. The dairy cooperatives of the country have the singular distinction of providing seventy five percent of their sales, on an average, to the farmers.

As many as 75 million women are engaged in the sector as against 15 million men. There is an increasing trend towards participation of women in livestock development activities. This has led to empowerment of women-headed households in the rural communities.

India with 30 crore bovines has 18% of the world's bovine population. Cattle Genetic Resources have been evolved by the farmers/cattle rearers/breeders using traditional and scientific knowledge, and today we have 39 breeds of cattle.

Indigenous breeds are robust and resilient and are particularly suited to the climate and environment of their respective breeding tracts. They are endowed with qualities of heat tolerance, resistance to diseases and the ability to thrive under extreme climates and low plane of nutrition.

For the first time in the country to take up holistic and scientific development and conservation of indigenous breeds two National Kamadhenu Breeding Centres are being established: one in southern region- in Andhra Pradesh and second one in northern region in Madhya Pradesh. Nucleus herd of all 39 indigenous breeds of cattle and 13 breeds of buffaloes is being established at National Kamadhenu Breeding Centre with the aim of development and conversation of these breeds.

RASHTRIYA GOKUL MISSION

With a view to conserve and develop indigenous bovine breeds, Rashtriya Gokul Mission, a new initiative under National Programme for Bovine Breeding and Dairy Development has been launched for the first time in the country, with an allocation of Rs 500 crore. Under the Mission, 14 Gokul Grams are being established, 35 Bull Mother Farms modernized with investment of more funds and 3629 Bulls have been inducted for genetic upgradation. Since 2007-08 to 2013-14, a meagre amount of only Rs 45 crore was spent for the development of indigenous breeds. Whereas, the current Government has in only one and a half years, upto December 2015, has approved 35 projects from 27 States and has sanctioned Rs 582.09 crore. This amount has been increased by more than 13 times in the last two years. Two National Kamdhenu Breeding Centre, one in northern region-Madhya Pradesh and other in Southern region- Andhra Pradesh, are being established in the country with an allocation of Rs 50 crores.

PASHUDHAN SANJIVANI

- An animal Wellness Programme; encompassing provision of Animal Health cards ('Nakul Swasthya Patra') along with UID identification of animals in milk and a National Data Base.
- Under the scheme 8.5 crore animals in milk will be identified using UID and their data will uploaded in the INAPH data base.
- This will play crucial role in control of spread of animal diseases. This will also lead to increase in trade of livestock and livestock products.

ADVANCED BREEDING TECHNOLOGY

- Assisted Reproductive Technique to improve availability of disease free female bovines through of sex sorted semen technology.
- Under the scheme 50 embryo transfer technology labs and In Vitro Fertilization labs care will be established.
- This will lead to exponential increase in milk production and productivity of animals in an exponential manner.

NATIONAL BOVINE GENOMIC CENTER FOR INDIGENOUS BREEDS (NBGC-IB)

- In developed dairy countries genomic selection is used to increase milk production and productivity for attaining faster genetic gain.
- In order to increase milk production and productivity of indigenous cattle, a National Bovine Genomic Centre will be established in the country.
- By using genomic selection indigenous breeds can be made viable within few generations.
- This center will play crucial role in identification of disease free High genetic merit bulls.

E-PASHUDHAN HAAT PORTAL

- At present, there is no authentic market for bovine germplasm in the form of semen, embryos, male & female calves; heifers and adult bovines. Farmers depend on middlemen for sale and purchase of quality germplasm.
- Breed wise information on availability of bovine germplasm is not available which is essential for promotion of indigenous bovine breeds.
- For the first time in the country under National Mission on Bovine Productivity E Pashudhan Haat portal has been developed. This portal will play important role in connecting breeders and farmers of indigenous breeds.
- Through this portal farmers will be aware about breed wise information on indigenous breeds. Farmers/breeders can sale animals of indigenous breeds through this portal. Information on all forms of germplasm has been uploaded on the portal. Immediately farmers can obtain benefits of the portal.
- This portal will give new dimensions to development and conservation of indigenous breeds as at present information on availability of germplasm of indigenous breeds is not available with the farmers.

Livestock, Poultry and Fisheries

Poultry

The egg production with an annual growth rate of nearly 5% has reached 78 billion egg productions. The poultry meat production is estimated to be 3 million metric tonne. At present the poultry products export is around Rs. 768 crore.

Along with increase in poultry production, there is increase in income of poultry farmers. There are problems associated with this industry and the small and large farmers have to grapple with them from time to time. One of the issues is spread of avian influenza which is a serious impediment to the development of this industry.

Poultry production is not only an important source of subsidiary income generation for many landless and marginal farmers but also provides nutritional security to the rural poor. However, compared to the organized sector, this backyard unorganized sector needs efforts at different levels to grow. The Government of India under its initiative programme of National Livestock Mission aims at sustainable growth and development of livestock sector including poultry

The National Livestock Mission (NLM)

The National Livestock Mission (NLM) has commenced from 2014-15. The Mission is designed to cover all the activities required to ensure quantitative and qualitative improvement in livestock production systems and capacity building of all stakeholders. The Mission will cover everything germane to improvement of livestock productivity and support projects and initiatives required for that purpose subject. This Mission is formulated with the objective of sustainable development of livestock sector, focusing on improving availability of quality feed and fodder. NLM is implemented in all States including Sikkim.

NLM has 4 submissions as follows:

1. The Sub-Mission on Fodder and Feed Development: To reduce fodder imports to nil and to make fodder production profitable enterprise.

2. Sub-Mission on Livestock Development: there are provisions for productivity enhancement, entrepreneurship development and employment generation (bankable projects), strengthening of infrastructure of state farms with respect to modernization, automation and biosecurity, conservation of threatened breeds, minor livestock development, rural slaughter houses, fallen animals and livestock insurance.

3. Sub-Mission on Pig Development in North-Eastern Region: There has been persistent demand from the North Eastern States seeking support for all round development of piggery in the region. For the first time, under NLM a Sub-Mission on Pig Development in North-Eastern Region is provided wherein Government of India would support the State Piggery Farms, and importation of germplasm so that eventually the masses get the benefit as it is linked to livelihood and contributes in providing protein-rich food in 8 States of the NER.

4. Sub-Mission on Skill Development, Technology Transfer and Extension: The extension machinery at field level for livestock activities is very weak. As a result, farmers are not able to adopt the technologies developed by research institutions. The emergence of new technologies and practices require linkages between stakeholders and this sub-mission will enable a wider outreach to the farmers.All the States, including NER States may avail the benefits of the multiple components and the flexibility of choosing them under NLM for a sustainable livestock development.

Fisheries

- In the Fisheries Sector, Government has restructured the fishery sector schemes by merging all the ongoing schemes under an umbrella of "Blue Revolution: Integrated Development and Management of Fisheries". The restructured scheme provides for an integrated development and management of fisheries, covering inland fisheries, aquaculture, marine fisheries including deep sea fishing, mariculture and all activities undertaken by the National Fisheries Development Board (NFDB).
- Blue Revolution initiated to increase fisheries production. Production increased to 150 lakh tonnes this year as against 95.72 lakh tonnes in the last year. The Blue Revolution, in its scope and reach, focuses on creating an enabling environment for an integrated and holistic development and management of fisheries for the socio-economic development of the fishers and fish farmers. Thrust areas have been identified for enhancing fisheries production from 10.79 mmt (2014-15) to 15 mmt in 2020-21.
- Fish Fingerling production is the single most important critical input visualised to achieve fish production targets under the Blue Revolution. We need to establish more hatchery to produce Fry/PL required for different categories of water bodies. Barring few States that's to in terms of fry (15-20 mm size), all States are in need of Fingerling production (standard size 80-100 mm). Use of High Yielding Verities of brooders is another significant aspect to be addressed on priority.
- 20 States have been identified based on their potential and other relevant factors to strengthen the Fish Seed infrastructure in the country. This program with a total expenditure of about Rs. 52000 lakh will facilitate the establishment of hatcheries and Fingerling rearing pond to ensure the fish production of 426 crores fish fingerling, 25.50 crores Post Larvae of shrimp and crab in the country. This will converge in the production of 20 lakh tonnes of fish annually and will benefit about 4 million families. The implementation of this program will supplement the requirement of stocking materials in the country up to a large extent, which is a much-needed input to achieve the enhanced fish production.

Rainbow Revolution

The various colors of the Rainbow Revolution indicate various farm practices such as Green Revolution (Food grains), White Revolution (Milk), Yellow Revolution (Oil seeds), Blue Revolution (Fisheries); Golden Revolution (Fruits); Silver Revolution (Eggs), Round Revolution (Potato), Pink Revolution (Meat), Grey Revolution (Fertilizers) and so on.

Thus, the concept of Rainbow revolution is an integrated development of crop cultivation, horticulture, forestry, fishery, poultry, animal husbandry and food processing industry.

- After the success of green White and Blue revolutions to secure the availability of Pulses, Milk and Sea food respectively the government is now geared for the Rainbow or the GYOR.
- It is the name of another revolution that aims at making the availability and consumption of vegetables and fruits. Green, yellow, orange and red vegetables and fruits need to made part of the daily diet.
- While there has been an emphasis on controlling the protein energy malnutrition, the micronutrient deficiencies have assumed public health importance in children over 50 per cent of apparently healthy children have sub clinical deficiencies of Vitamin A, B2, B6, folate and Vitamin C.
- The cases of isolated deficiencies of micronutrients are rare in India; it is usually multiple micronutrient deficiency that is spotted more.
- Iron deficiency remains a major nutritional problem among infants and children. Other micronutrients that have found a focus lately include zinc, copper and Vitamin B12. Children with sub-clinical deficiencies of micronutrients are more vulnerable to develop frequent, common, day-to-day infections thus triggering a vicious cycle of under-nutrition and recurrent infections. Respiratory infections are common in these children.
- A study by National Nutrition Monitoring Bureau has implied that 90 per cent of children are anaemic. When children get anaemic, they lose appetite making them vulnerable to infections. This loss of appetite makes them eat less and the body's nutritional needs are not met.