



# ***"BHARAT UTTHAN***

## **भारत उत्थान"**

### **AGRICULTURE AND FARMER'S WELFARE**

**Review of Major Initiatives And Measures in**

**Agriculture and Farmer's Welfare By NDA**

**Government**

**DECEMBER 2017**

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# "BHARAT UTTHAN"

## *MAJOR INITIATIVES AND MEASURES BY NDA GOVERNMENT RELATING TO AGRICULTURE SECTOR, STATUS RE-IMPLEMENTATION*

### **I. INTRODUCTION**

Agriculture plays a vital role in India's economy. Over 58 per cent of the rural households depend on agriculture as their principal means of livelihood. Agriculture, along with fisheries and forestry, is one of the largest contributors to the Gross Domestic Product (GDP). As per the 2nd advised estimates by the Central Statistics Office (CSO), the share of agriculture and allied sectors (including agriculture, livestock, forestry and fishery) is expected to be 17.3 per cent of the Gross Value Added (GVA) during 2016-17 at 2011-12 prices.

If comparison is made between population dependent on Agriculture and share of GDP of Agriculture, some disturbing facts emerge which is a fall out of policies over last 50 years. Though, GDP contribution of Agriculture reduced from 51% to just 17% in the year 2015, the population dependent on Agriculture has not reduced to that extent and the work force dependent on Agriculture is at 52% of population.

At the same time Indian Agriculture is characterized by small and fragmented holdings and high dependence on monsoon rains. Operating small holdings is often unviable and farming is not a profitable business or enterprise. It is an occupation in a sector marked by large-scale disguised unemployment and unending uncertainties at every stage of farm operations. Even though, Sustainable growth of the Indian economy depends on the agriculture sector. But over the years, Indian agriculture sector is exhibiting sluggish growth rate due to various risks challenging the sector.

## **II. OBJECTIVES**

In the light of the above, following are the objective of the Study:

- To study and analyze initiatives, policies, measures taken by the NDA Government aimed at working out a system for food and nutrition security, sustainability in farming system, enhancing quality and cost competitiveness of farm commodities.
- To review the selected major policies of the NDA Government in the agriculture and other allied fields.
- To give recommendations arising out the above.

## **III. METHODOLOGY**

In order to achieve the objective of the study, we followed detailed methodology involving:

- Detailed Study and discussion to assess initiatives, policies, measures taken by the NDA Government.
- Conferences and discussions with the relevant Departments, Personnel involved in implementations of the recommendations of initiatives, policies, at Department of Agriculture Cooperation & Farmers Welfare.
- For understanding the needs of the subject matter covered and seek answers to the questions, the study was ‘analytical’ in nature. The data was collected through primary as well as secondary means, including methods like library research, observational analysis and sample interview.

## **IV. FINDINGS OF THE STUDY**

On the review of Action Plan and the Inter-Ministerial Committee Reports, the study included present Government's agri-missions, programs, and initiatives undertaken by Agriculture Cooperation & Farmers Welfare Ministry for the period from June 2014. Selected initiatives along with recommendations are given in the ensuing paragraphs.

## 1. U turn in Agriculture Production

The experience of the last three decades indicates that the growth rate of foodgrain production decreased from 2.93 percent during the period 1986-97 to 0.93 percent during 1996-2008. The declining growth of food grains production was partly contributed by the decline in area but largely by the decline in yield rate. The yield growth rate of food grains decreased from 3.21 percent to 1.04 percent during the same time period. There was also decline in growth in the production of other agricultural commodities. This is clearly reflected in the decelerated agriculture growth from 3.5 percent during the period 1981-82 to 1996-97 to around 2 percent during 1997-98 to 2004-05. Nevertheless, there have been signs to improvement during the recent years. The U-turn in agricultural production occurred mainly due to the implementation of important programs, such as Rastriya Krishi Vikas Yojana (RKVY), National Food Security Mission (NFSM), National Horticultural Mission (NHM), various sub-schemes and majors and substantial increase in the state agricultural outlay on agriculture.

"देश के संतुलित विकास के लिए बहुत आवश्यक है कि देश के गांवों में रहने वाला किसान सशक्त हो। एक सशक्त किसान के बिना न्यू इंडिया का सपना साकार नहीं हो सकता और इसलिए सरकार 2022 तक किसानों की आमदनी दोगुनी करने के लक्ष्य पर काम कर रही है। इसलिए अब कृषि योजनाओं की अप्रोच में बदलाव करते हुए, उन्हें **production centric** होने के साथ ही **income centric** भी बनाया गया है।" Shri Narendra Modi, Prime Minister

In the above background the study finds that the schemes mentioned in the ensuing chapters are step in the desired direction as given by the Prime Minister.

## **2."Swastha Dhara Khet Hara"- SOIL HEALTH**



### **2.1. Soil Health Card**

Soil Health Card is a Government of India's scheme promoted by the Department of Agriculture & Co-operation under the Ministry of Agriculture. A SHC is meant to give each farmer soil nutrient status of his holding and advice him on the dosage of fertilizers and also the needed soil amendments, that he should apply to maintain soil health in the long run.

### **2.2. What does Card contains**

SHC is a printed report that a farmer will be handed over for each of his holdings. It contains the status of his soil with respect to 12 parameters, namely N,P,K (Macro-nutrients) ; S (Secondary-nutrient) ; Zn, Fe, Cu, Mn, Bo (Micro - nutrients) ; and pH, EC, OC (Physical parameters). Based on this, the SHC indicates fertilizer recommendations and soil amendment required for the farm.

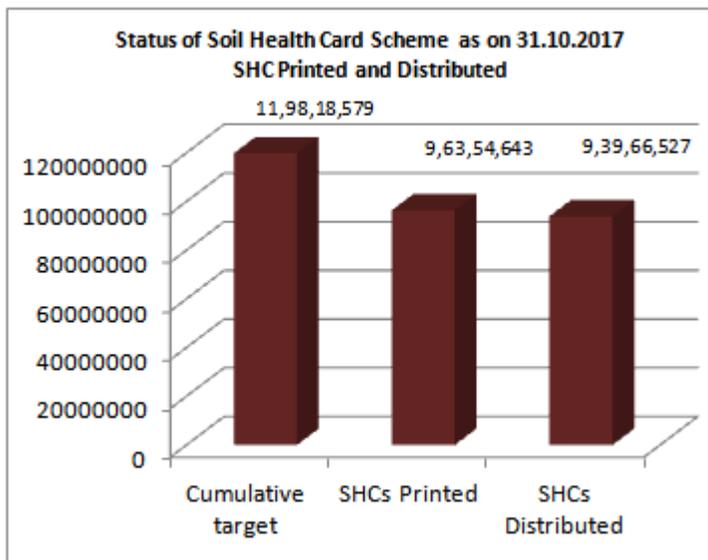
The card contains an advisory based on the soil nutrient status of a farmer's holding. It shows recommendations on dosage of different nutrients needed. Further, it advises the farmer on the fertilizers and their quantities he should apply, and also the soil amendments that he should undertake, so as to realize optimal yields.

### **2.3. Periodicity of Three Years**

It is made available once in a cycle of 3 years, which indicates the status of soil health of a farmer's holding for that particular period. The SHC given in the next cycle of 3 years will be able to record the changes in the soil health for that subsequent period.

## 2.4. Successful Implementation

As of Oct 2017 around 2900 testing Labs are operational across rural India, over 9 crores SHC are given to farmers.



**2.6. Some Success Story after Using SHC- Maharashtra** (there are many such success stories with evidence in many States)

Name of the farmer:	Shri. Kashinath Zitruji Dhage
Village, District:	At -Malkapur, Tal. Deoli , Dist. Wardha
Crop cultivated:	Cottan and Soyabean
Dosages before SHC was received:	120:60:60 Kg NPK/ha.
Dosages after receipt of soil information through SHC:	100:50:50 Kg NPK/ha.

Cost of cultivation:	1) Cost of Cultivated- Rs.20,000/- per acre 2) Decrease in cost of cultivation- Rs.3,000/- per acre.
Increase in production:	15 to 20 % increase in crop production.
Use of SHC:	i) Help to increase in production. ii) Decrease in labour cost. iii) Help to maintain soil fertility.



### **3. Agriculture Insurance - Pradhan Mantri Fasal Bhima Yojana**

If comparison is made between population dependent on Agriculture and GDP contribution of Agriculture, some disturbing facts emerge which is a fall out of policies over last 50 years.

Though, the GDP contribution of Agriculture reduced from 51% in 1951 to just 17% in 2015, the population dependent on Agriculture has not reduced to that extent and work force is at nearly 50%.

This simple data shows systematic transfer of Income generated from Agriculture to other sectors.

PMFBY proposes to reverse such trend of transfer of income from Agriculture sector to other sector. Comprehensive risk insurance is provided to cover Yield Losses due to non-preventable risks.

All earlier schemes had coverage of the risks arising out of standing crops. For the first time, PMFBY has introduced coverage from the risk of prevented sowing. In these cases, farmers are prevented from sowing/planting the insured crop due to adverse weather conditions.

#### **3.1. Unseasonal Rains, Hailstorms, etc. due to change in the environmental pattern recognized.**

For the first time, Agriculture insurance is introduced on individual farm basis instead of notified area basis in respect of the following:

- i. **LOCALISED CALAMITIES** - Loss / damage resulting from occurrence of identified localized risks i.e. hailstorm, landslide, and Inundation.
- ii. **POST-HARVEST LOSSES** - crops which are kept in “cut & spread” condition to dry in the field after harvesting, against specific perils of cyclone / cyclonic rains, unseasonal rains throughout the country.

Apart from crop insurance, risks arising out of **entire lifecycle of farmer** are covered as a package.

These risks and coverages are:

- i. Crop Insurance
- ii. Fire & Allied Perils
- iii. Personal Accident Insurance
- iv. Agriculture Pump-set Insurance
- v. Agriculture Tractor

- vi. Student Safety Insurance
- vii. Life Insurance

Considering average income and 1.5 hectares of land holding of a typical farmer, all above risks in his lifecycle can be covered by just Rs. 5,145/- (Rupees Five Thousand One Hundred & Forty Five Only).

### **3.2. Use of Mobiles, GPS, Drones and Technology**

Major criticism of earlier crop insurance schemes was of:

- i. Discrepancy in the crop area insured, as compared to the net area reported to have been sown.
- ii. Crop-cutting experiments for accurate estimation of crop yield.

And these were main reasons for failure of these schemes. Use of Technology by assessment of losses through latest technology of mobile phones, GPS, Drones, etc.

To give a simple example, if a picture / image is taken from a camera in mobile phone, that picture can be tagged with not just date and time but also latitude and longitude giving exact location from where such picture was taken.

### **3.3. Affordable Premium**

The crop insurance premiums are standardised at 2% of Kharif and 1.5% of Rabi instead of over 8% premium in the earlier schemes. Such lower rate of premium is a game changer in popularising the scheme.

### **3.4. Credit delivery-related issues and expeditious settlement of claims**

These issues are sorted out by using Aadhar based DBT (Direct Bank Transfer). In all the cases, instead of issuing the cheques, insurance companies will transfer the settlement of claims directly in the bank account of the beneficiary. Farmers will get claim against full sum insured without any reduction.

### **3.5. Product Design: Bottom Up Design**

The design of the product of insurance itself was complicated and difficult for farmers to understand. The design of this product by way of a lifecycle risk is an excellent attempt to simplify the structure. This will help in a great way to popularise to the scheme.

### **3.6. Increased Private Sector Participation and Cap on their losses**

The scheme has a potential to Increased Private Sector Participation and their use of intermediaries / agents for voluntary contribution by farmers. Insurance Companies would be keen to participate as their losses are maximum upto 350% of the total premium collected or 35% of total sum assured whichever is higher.

The new Crop Insurance Scheme has been formulated in line with One Nation–One Scheme theme. It replaces existing two schemes viz. National Agricultural Insurance Scheme (MNAIS) and Modified National Agricultural Insurance Scheme (MNAIS) by removing their inherent drawbacks (shortcomings) and incorporating the best features of all previous schemes.

### **3.7. Farmers applications for Insurance increased**

Total numbers of Farmers applications for Insurance have increased from 485 Lakh's in 2015-16 to 574 Lakh's in 2016-17.

### **3.8. Pradhan Mantri Fasal Bhima Yojana covers entire life cycle risks of farmers.**

## **4. National Agriculture Market**

### **4.1. e-Nam**

National Agriculture Market is a pan-India electronic trading portal which networks the existing APMC mandis to create a unified national market for agricultural commodities.

The NAM Portal provides a single window service for all APMC related information and services. This includes commodity arrivals & prices, buy & sell trade offers, provision to respond to trade offers, among other services. While material flow (agriculture produce) continue to happen through mandis, an online market reduces transaction costs and information asymmetry.

Agriculture marketing is administered by the States as per their agri-marketing regulations, which is administered by a separate Agricultural Produce Marketing Committee (APMC) which imposes its own marketing regulation (including fees). This fragmentation of markets, even within the State, hinders free flow of agri commodities from one market area to another and multiple handling of agri-produce and multiple levels of mandi charges ends up escalating the prices for the consumers without commensurate benefit to the farmer.

e-NAM is answer. It creates a unified market through online trading platform, both, at State and National level and promotes uniformity, creates integrated markets, removes information asymmetry between buyers and sellers and promotes real time price discovery, based on actual demand and supply, promotes transparency in auction process, and access to a nationwide market for the farmer, with prices commensurate with quality of his produce and online payment.

### **4.2. Objectives of NAM**

- i.** A national e-market platform for transparent sale transactions and price discovery initially in regulated markets. Willing States to accordingly enact suitable provisions in their APMC Act for promotion of e-trading by their State Agricultural Marketing Board/APMC.
- ii.** Liberal licensing of traders / buyers and commission agents by State authorities without any pre-condition of physical presence or possession of shop /premises in the market yard.
- iii.** One license for a trader valid across all markets in the State.
- iv.** Harmonisation of quality standards of agricultural produce and provision for assaying (quality testing) infrastructure in every market to enable informed bidding by buyers. Common tradable parameters have so far been developed for 69 commodities.

- v. Single point levy of market fees, i.e. on the first wholesale purchase from the farmer.
- vi. Provision of Soil Testing Laboratories in/ or near the selected mandi to facilitate visiting farmers to access this facility in the mandi itself.

### **4.3. Enrolled Mandies**

As at the end of October 2017, 455 Mandies (out of 585 selected large wholesale Markets) are enrolled are equipped with Online Trading in this Physical Segment. Execution of the trades are also taking place not only within the State but also across India, resulting into unified Indian market.

## **5. Neem Coating of Urea**

### **5.1. Urea Important Fertilizer**

The nitrogenous fertilizer (Urea) is identified as a life changing event in the history of agriculture. Urea is the world's most common nitrogen-fertilizer, which has been used consistently in the agricultural and allied sectors. Never before this, had agriculture seen such booming heights in production as well as prosperity.

The white, crystalline solid comprises a proportionate compound mixture of more than one nutrient besides containing 46 per cent of nitrogen. Cultivators have long identified with this chemical fertilizer as a great ladder for achieving a huge success in farm production.

### **5.2. Leakages from subsidized Urea**

Out of all fertilizers, urea is the most produced, most consumed, and the most imported fertilizer in the country. In fact, subsidized urea suffers from three types of leakage: First of all, diversion among inefficient urea producers, diversion to non-agricultural uses and abroad, consumption by larger/ richer farmers. Second, under-pricing urea, relative to other fertilizers, especially P & K, encourages overuse which, in turn, results in significant environmental externalities, including the depletion of soil quality. Third, multiple distortions in terms of price and movement controls,

manufacturer subsidies, import restrictions feed on each other, making it difficult, in the process, to reallocate resources within the sector to more efficient uses.

### **5.3. Mandatory 100% Neem Coating**

With this background, Government of India included Neem Coated Urea, a slow release fertilizer, and made it mandatory on the part all the indigenous producers of urea to produce 100 per cent of their total production of subsidized urea as NCU from 2015. Entire quantity of indigenously produced urea and imported urea is being neem coated w.e.f 1<sup>st</sup> September, 2015 and 1<sup>st</sup> December, 2015 respectively. All ports have such facility to Neem Coat imported Urea.

### **5.4. Positive Effects of Neem Coating**

Agricultural Development and Rural Transformation Centre (ADRTC) of the Institute for Social and Economic Change, Bengaluru carried out study specifically in this area. The study examined the coverage of NCU, its adoption behavior of farmers and its impact on yield across selected crops in Karnataka state. It was also to study diversion of Urea/NCU towards non-agricultural purposes within the farming community and to document the baseline information on the status and implementation of Soil Health Card Scheme, as a closely linked area of concern in the state.

### **5.5. Finding of the Study by ADRTC**

The brief findings of the study are as follows:

- i. Improvement in soil health;
- ii. Reduction in costs with respect to plant protection chemicals;
- iii. Reduction in pest and disease attack;
- iv. An increase in yield of paddy, sugarcane, maize, soybean and tur/red gram to an extent of 5.79%, 17.5%, 7.14%, 7.4% and 16.88% respectively;
- v. Diversion of highly subsidized urea towards non-agricultural purposes negligible among farmers after the introduction of the mandatory policy of production and distribution of only Neem coated urea.

Some State Governments have reduced their requirement which was initially projected. There is no report of shortages received from any of the State Government. It is, therefore, perceived that Neem Coating of Urea has helped in curbing the diversion.

### 5.6. Consumption of Urea, Production and Yield

The details of consumption of urea during the last three years are as under:

Year	Urea			
	Kharif	Rabi	Total	Kg/Hectare
2014-15	141.67	164.63	306.10	152.53
2015-16	152.70	153.64	306.35	149.61
2016-17	143.64 *	Not finalized Yet		
* Estimated				

### 5.7. Production, Imports and Consumption of Fertilizers

A.	Nitrogenous fertilizers	2014-15	2015-16	2016-17
	Production	12394	13416	13331
	Imports	4766	5068	3385
	Consumption	16946	17372	NA
B.	Phosphatic fertilizers			
	Production	4121	4394	4567
	Imports	1832	2888	2130
	Consumption	6098	6979	NA

<b>C.</b>	<b>Potassic fertilizers</b>			
	Imports	2537	2053	2325
	Consumption	2532	2402	NA
<b>D.</b>	<b>All fertilizers (NPK)</b>			
	Production	16515	17810	17898
	Imports	9135	10009	7840
	Consumption	25576	26753	NA

It will be noticed that imports of NPK has substantial reduced to the extent of 22%.

## **6. Jal Kranti Abhiyan**

### **6.1. Activities**

Jal Kranti Abhiyan was launched on 5th June, 2015 across the country. Jal Kranti Abhiyan is being celebrated during the year 2015-16 to consolidate water conservation and management in the country through a holistic and integrated approach involving all stakeholders, making it a mass movement.

It achieves the activities/components being undertaken the Abhiyan are:

1. Jal Gram Yojana
2. Development of Model Command Area
3. Pollution abatement
4. Mass Awareness Programme.

## **6.2. Transformation through Jal Grams**

Jal Gram Yojana is one of the most important activity of the Jal Kranti Abhiyan under which two villages in every district (preferably being a part of dark block or facing acute water scarcity) are being selected as Jal Grams. An integrated water security plan for water conservation, water management and allied activities are being prepared to ensure optimum and sustainable utilization of water. To start with 741 Jal Grams are selected for the transformation.

Bringing 10 million hectares of more irrigation - Under PMKSY-Accelerated Irrigation Benefits Programme (AIBP), 99 ongoing Major/Medium projects having irrigation potential of 76.03 lakh hect. have been identified, in consultation with states which could be completed in phases up to December, 2019.

## **6.3. Kadwanchi Experience - Farmers growing Grapes in Draught Prone Area**

Kadwanchi village is 18 km away from Jalna city, a Marathwada Region in Maharashtra. Marathwada, is mostly a Draught Prone Region. Water scarcity is the major constraint in getting expected yield of crops, to conserve soil and to maintain soil fertility. Krishi Vigyan Kendra (KVK), Jalna, took the challenge and a new watershed development process was undertaken. Firstly, Soil conservation treatments were carried out with priority in order to conserve soil, enhance soil moisture, support vegetative growth, check sedimentation, control run-off velocity. Major soil conservation treatments are trenching and bunding with vegetative cover. Secondly, farmers participation in the entire project by way of contribution was mandatory and ensured. This has resulted into a dramatic improvement in the water tables for around 2000 hectares of Kadwanchi village covering watershed area. The farmers which were growing traditional crops such as millets, started growing grapes. Soil conservation was treated as synonym with water conservation and watershed development. A tour around Kadwanchi village shows clear sign of prosperity amongst the farmers where almost every farm of around 2-4 hectares was having tractor and every farm was equipped with drip irrigation. The prosperity amongst the farmers was noticeable and KVK, Jalna has estimated per capita income of farmers at Kadwanchi at Rs. 1,27,000/- from meager Rs. 3,264/- before soil conservation measures.

Though, the watershed development at Kadwanchi was completed in 2002, the experience is still relevant with the lessons:

- i. Soil conservation treatments with farmers participation is almost equivalent to water conservation;
- ii. Currently, increased water table and continuous water availability is possible in shortest possible time of 1.5 to 2 years with new soil conservation techniques and vegetative growth in shortest possible time;
- iii. With the new technology, mobile, etc. training and communication with the farmers has become easier and can ensure its participation;
- iv. Selection of crops by Kadwanchi farmers was grapes, which is essentially a crop for which there are no price regulations by the Government. In the similar cases of increased water availability, a crop such as Onion may not result in such improvement in the incomes of the farmers.

## **7. More Crop Per Drop**

### **7.1. Har Khet ko pani**

Following Pandit Deendayalji's "Har Khet ko Pani aur Har Hath ko Kaam", "Prime Minister Krishi Sinchayee Yojana". Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) has been formulated. It has a vision of extending the coverage of irrigation '**Har Khet ko pani**' and improving water use efficiency '**More crop per drop**' in a focused manner with end to end solution on source creation, distribution, management, field application and extension activities.

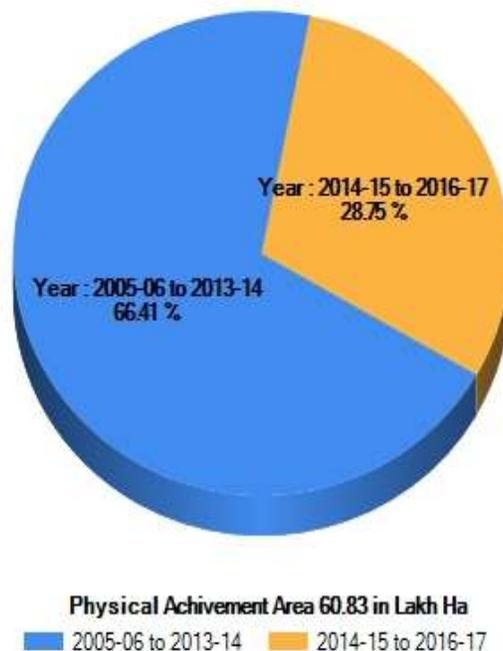
### **7.2. Execution Monitoring and State Level Planning**

Considering federal structure the PMKSY Programme will be to adopt a 'decentralized State level planning and projectised execution' structure that will allow States to draw up their own irrigation development plans based on District Irrigation Plan (DIP) and State Irrigation Plan (SIP). It will be operative as convergence platform for all water sector activities including drinking water & sanitation, MGNREGA, application of science & technology etc. through comprehensive plan.

### 7.3. Drought Free Maharashtra - Jalyukt Shivar Abhiyaan

Maharashtra government has launched the project "**Jalyukt Shivar Abhiyaan**" in a bid to make Maharashtra a drought-free state by 2019. The project involves deepening and widening of streams, construction of cement and earthen stop dams, work on nullahs and digging of farm ponds. The mobile app, developed by MRSAC, is being used to map these locations. The mapped location can be monitored through this web page. The project aims to make 5000 villages free of water scarcity every year

**Total Coverage v/s Coverage under PMKSY**



## **8. Recognising merits in Traditional Water Conservation Practices**

### **8.1. Jal Mandir**

Jal Mandirs or step-wells, also called Vav in Gujarati, are wells in which the water can be reached by descending a set of steps. They may be covered and protected, and are often of architectural significance. It can be multi-storied also, in which a bullock turns the water wheel ("Rehant") to raise the water in the well to the first or second floor. A basic difference between step-wells on the one hand, and tanks and wells on the other, was to make it easier for people to reach the ground water, and to maintain and manage the well. Builders/ masons dug deep trenches into the earth for dependable, year-round groundwater. They lined the walls of these trenches with blocks of stone, without mortar, and created stairs leading up to the water.

### **8.2. Traditional use and importance of Jal Mandir**

The step-wells provided easy access to the water for general public for various purposes e.g. drinking, bathing, performing religious rituals etc.

With increasing population, the demand of water for domestic as well as irrigation has increased manifold resulted gradual shift towards deep tube wells and bore wells thereby neglected these traditional water abstraction structures for a long period.

### **8.3. Unique Location of Jal Mandir**

The location of these ancient wells found to be unique in the sense that even during dry period of the year most of these wells have water in them, highlighting the ancient wisdom of craftsmen in those days. Most of these wells are part of phreatic aquifers of various formations such as alluvial, basaltic, phyllite etc.

### **8.4. Gujarat Government's Mission**

Government of Gujarat decided under mission mode, from 2007-08 to 2011-12, to revive, clean up and rejuvenate these step-wells, which are named as "Jal-Mandir" — Water Temple – as these are our national heritage and are a different kind of water harvesting structures.

The concept is innovative especially from the point of view of sustainability of village water supply system by inculcating the sense of responsibility among people and motivating them towards maintaining the system by attaching social and religious facets to it which is vital for water conservation.

### **8.5. Implementation Appeal to other States**

Present Government suggests to all the States that, considering water conservation and sustainability of village water supply systems in many parts of the country, the Jal Mandir concept can be replicated in rest of the country especially in water scarce rural areas.

### **8.6. Jal Mandir Rejuvenation with minimum expenditure - A Pictorial View**

Irvai Vav - at Town: Modasa, Tal: Modasa, Dist: Aravalli - Expenditure on renovation Rs. 54,000/-



### 8.7. Jal Mandir Rejuvenation with minimum expenditure - A Pictorial View

Nagalpar Jal-Mandir at Vill: Nagalpur, Tal: Botad, Dist: Botad - Expenditure on renovation Rs. 10,000/-



## **9. Horticulture**

### **9.1. Highest Production of Horticulture**

7.43 India witnessed sharper increase in acreage of horticulture crops compared to food grains over the last five years (from 2012 to 2014-15).

Between 2012 to 2014-15 there has been an increase of 10 per cent in horticulture production compared to an increase of 6 per cent in food grains. Since 2012-13, the production of horticulture has outpaced the production of food grains. 7.44 Over the last decade, the area under horticulture increased by about 3.1 per cent per annum and annual production increased by about 6 per cent.

During 2015-16 the production of horticulture crops was about 286.2 million tons from an area of 24.47 million hectares. 7.45 The production of fruits has increased from 28,632 thousand tons to 90,183 thousand tons and the production of vegetables has increased from 58,532 thousand tons to 1,69,064 thousand tons since 1991-92 to 2015-16.

### **9.2. Export Growth**

Among the horticulture crops, vegetables constitute more than 50 per cent of total horticulture production. The export growth of fresh fruits and vegetables in terms of value is around 14 per cent and of processed fruits and vegetables is around 16 per cent. The vegetable and fruit segments of the horticulture sector have emerged as key drivers of agricultural growth.

### **9.3. Reduced Wastage**

The key challenge that the horticulture sector faces in India are post harvest losses, availability of quality planting material and lack of market access for horticultural produce of small farmers. The combined wastage (harvest and post harvest) for horticulture crops between 5 to 15 per cent in the case of fruits and vegetables is very high, compared to the range of 5 to 6 percent in the case of cereals, around 6 to 8 per cent for pulses and 5 to 10 per cent for oilseeds.

During 2016-17, 7554 post-harvest infrastructure, 801 markets infrastructure were established under MIDH (Mission for Integrated Development of Horticulture), to reduce wastages which range between 5 to 16 percent in the case of horticultural crops.

#### **9.4. Quality Seeds making sure of its availability**

The availability of quality planting material, specially processable and exportable varieties, has been another area of concern in the horticulture sector. Under MIDH, financial assistance is provided for setting up and modernization of nurseries, tissue culture labs, seed and planting material production, seed processing infrastructure and import of planting materials. To further step up the availability of quality planting material, the fund allocation for interventions related to planting material under MIDH has been enhanced to about 10 per cent from the financial year 2015-16 along with accreditation of nurseries.

#### **9.5. Market excess to Small and Marginal Farmers for Horticulture Products**

The majority of the horticultural producers are small and marginal farmers. This, along with high perishability of the produce, present challenges to marketing of horticultural produce. The weakness in the horticultural supply generally results into cyclical glut/shortages and price spike/ troughs. To improve the market access for horticulture producers, several steps have been initiated under MIDH. The small and marginal farmers have been mobilized to form Farmer Producer Organisation / Farmer Interest Group. From this year, the FPO model – enabling FPOs to directly market their produce – is being implemented.

### **10.Kisan Call Centres and m-Kisan Portal**

**10.1.** As part of agricultural extension (extending research from lab to the field), under the National e-Governance Plan - Agriculture (NeGP-A), various modes of delivery of services have been envisaged. These include internet, touch screen kiosks, agri-clinics, private kiosks, mass media, Common Service Centres, Kisan Call Centres, and integrated platforms in the departmental offices coupled with physical outreach of extension personnel equipped with pico-projectors and hand held devices. However, mobile telephony (with or without internet) is the most potent and omnipresent tool of agricultural extension.

**10.2.** Kisan Call Centres (KCC) has been launched with the basic aim to provide information to farming community through toll free number on all seven days a week. Secondly, m-Kisan portal has emerged as effective way to communicate with the farmer at every nook and corner of the Country. Officers, Scientists and Experts from all organisations and Department of the Government of India and State Governments {including State Agricultural Universities, Krishi Vigyan Kendras and Agro- Meteorological Field Units} are using this Portal for disseminating information ( giving topical & seasonal advisories and providing services through SMSs to farmers in their local languages) on various agricultural activities to registered farmers.

### 10.3. Brief Overview of the m-Kisan Portal

As per TRAI data of May, 2014, though there are about 38 crore mobile telephone connections in rural areas, internet penetration in the countryside is still abysmally low (in single digit percentage). Therefore, mobile messaging is the most effective tool so far having pervasive outreach to nearly 8.93 crore farm families. m-Kisan SMS Portal for farmers enables all Central and State government organizations in agriculture and allied sectors to give information/services/advisories to farmers by SMS in their language, preference of agricultural practices and location.



The project conceptualized; designed and developed in-house within the Department of Agriculture & Cooperation has widened the outreach of scientists, experts and Government officers posted down to the Block level to disseminate information, give advisories and to provide advisories to farmers through their mobile telephones.

#### **10.4 More than One Thousand Crore messages sent**

SMS Portal was inaugurated by the Hon'ble President of India on July 16, 2013 and since its inception nearly 327 crore messages or more than 1044 crore SMSs have been sent to farmers throughout the length and breadth of the country. These figures are rising ever since.

**10.5.** However, the present Government has successfully implemented m-Kisan portal and is communicating with the farmers by making effective use of mobile communication.

### **11. Fisheries - Blue Revolution**

*"The country is well aware of associates, Green Revolution and White Revolution. Demand for time is to bring about the change in the lives of our fishermen brothers through Blue Revolution" - Shri Narendra Modi, Prime Minister.*

BLUE REVOLUTION - the Neel Kranti Mission has the vision to achieve economic prosperity of the country and the fishers and fish farmers as well as contribute towards food and nutritional security through full potential utilization of water resources for fisheries development in a sustainable manner, keeping in view the bio-security and environmental concerns.

#### **11.1. Vision of Neel Kranti Mission**

The Neel Kranti Mission, 2016, being the year in which the Vision has been given by the Prime Minister has multi-dimensional approach to all activities concerned with development of the fisheries sector as modern world class industry in India. It focuses on tapping the full production potential and enhance productivity substantially from aquaculture and fisheries resources, both inland and marine. Substantially increasing the share of Indian fisheries in the export area is a key goal. It will ensure doubling the income of the fishers and fish farmers with inclusive participation of the socio-economically weaker sections and ensure sustainability with environment and biosecurity.

### **11.2. Second largest producer in the world**

India is the second largest producer of fish and also the second largest producer of fresh water fish in the world. Fish production has increased from 41.57 lakh tons (24.47 lakh tons for marine and 17.10 lakh tons for inland fisheries) in 1991-92 to 107.95 lakh tons (35.8 lakh tons for marine and 72.10 lakh tons for inland fisheries) in 2015-16.

### **11.3. Aquaculture**

Increased production - Haryana Success Story

Progressive farmer of Haryana adopts Recirculation Aquaculture System to boost fish production – A Success Story Shri Sultan Singh, a progressive fish farmer, established the Sultan Fish Seed Farm, in 1984 in village Butana, tehsil Nilokheri, Karnal district, Haryana, in about 100 acres of land in which fish hatcheries, nurseries and culture pounds were established. Latest technology in aquaculture is adopted and the farm supplies quality seed of Indian Major Carps, Exotic Carps, Giant Freshwater Prawn, etc., in bulk quantities to fish farmers of Haryana, Punjab, Rajasthan, Gujrat, Uttar Pradesh and Chhattisgarh States.

## **12. Promoting Fork to Farm**

### **12.1. SAMPADA (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters)**

For ensuring better realisation in monetary terms of farmers' produce. The government is reviewing the post-production policy regime along with facilitating better understanding of what the markets demand. This points to the need for promoting "fork-to-farm" demand and price signals, rather than a "farm-to-fork" push. In this direction SAMPADA will play an important role.

### **12.2. Objectives and Coverage of SAMPADA**

SAMPADA will result in creation of modern infrastructure with efficient supply chain management from farm gate to fork. It will not only provide a big boost to the growth of food processing sector in the country but also help in providing better prices to farmers. Creates huge employment

opportunities especially in the rural areas, reducing wastage of agricultural produce, increasing the processing level and enhancing the export of the processed foods.

Following are areas covered by SAMPADA:

- i. Mega Food Parks
- ii. Integrated Cold Chain and Value Addition Infrastructure
- iii. Creation / Expansion of Food Processing & Preservation Capacities
- iv. Infrastructure for Agro-processing Clusters
- v. Food Safety and Quality Assurance Infrastructure
- vi. Human Resources and Institutions

SAMPADA is expected to leverage investment of Rs. 31400 crore, handling of 334 lakh MT agro-produce valuing Rs. 1,04,125 crore, benefit 20 lakh farmers and generate 5,30,500 direct/ indirect employment in the country by the year 2019-20.

### **13. Promoting Organic Farming**

Organic agriculture is holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. Organic production systems are based on specific and precise standards of production which aim at achieving optimal agro-ecosystems which are socially, ecologically and economically sustainable. International Federation of Organic Agriculture Movements, defines “organic agriculture” as: “a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved”.

**13.1.** Cultivated area under certified organic farming has grown almost 17 fold in last one decade (42,000 ha in 2003-04 to 7.23 lakh ha in 2013-14).

Currently, India has 10th ranks among the top ten countries of the world in terms of cultivable land under organic certification. The certified area includes 15% cultivable area with 0.72 Mha and rest 85% (3.99 Mha) is forest and wild area for collection of minor forest produces.

All earlier schemes / programs concentrated on Individual farm lands and tried to promote organic farming through various schemes without much success. However, the key differentiation in the approach by the new Government was introduction and giving benefits to cluster based farm lands for the purpose of organic farming. Therefore, Paramparagat Krishi Vikas Yojana (PKVY) was introduced in the year 2015. Under this scheme, it is decided to extend following initiatives / benefits:

- i. Groups of farmers would be motivated to take up organic farming under Paramparagat Krishi Vikas Yojana (PKVY). Fifty or more farmers will form a cluster having 50 acre land to take up the organic farming under the scheme.
- ii. In this way during three years 10,000 clusters will be formed covering 5.0 lakh acre area under organic farming. There will be no liability on the farmers for expenditure on certification.
- iii. Every farmer will be provided Rs. 20,000 per acre in three years for seed to harvesting of crops and to transport produce to the market.
- iv. Organic farming will be promoted by using traditional resources and the organic products will be linked with the market.
- v. It will increase domestic production and certification of organic produce by involving farmers

The target is to promote certified organic cultivation in 2 lakh ha covering 10,000 clusters. Many North Eastern state Governments have promoted organic agriculture in the region. Sikkim has aimed to make the entire state 100% certified organic by the end of this year (2015). With regards to production, India produced around 1.24 mt of certified organic products which includes namely sugarcane, cotton, oil seeds, basmati rice, pulses, spices, tea, fruits, dry fruits, vegetables, coffee and their value added products. The production is not limited to the edible sector but also produces organic cotton fiber, functional food products etc. Among all the states, Madhya Pradesh has covered largest area under organic certification followed by Himachal Pradesh.

## 14. Key Recommendations

### 1. EXIM Policy – Agriculture

Indian EXIM Policy contains various policy related decisions taken by the government in the sphere of Foreign Trade, i.e., with respect to imports and exports from the country and more especially export promotion measures, policies and procedures related thereto. Trade Policy is prepared and announced by the Central Government (Ministry of Commerce). India's Export Import Policy also known as Foreign Trade Policy, in general, aims at developing export potential, improving export performance, encouraging foreign trade and creating favorable balance of payments position.

As is well known, present EXIM policy has main objective to boost export business of India. However, considering adverse terms of trade towards Agriculture, Internationally and also locally, and its impact on consumers, it is imperative that Agriculture needs to be carved out of the EXIM policy. Framing of Agriculture EXIM Policy would certainly help to define objectives in Agriculture Trade in India. This will give opportunity to reverse the policy adopted in all earlier years of favorable price mechanism towards the consumers instead of farmers.

### 2. Soil Conservation needs to be treated as equivalent to water conservation and entire project to be completed in 1.5 to 2 years time.

*Kadwanchi Experience - Farmers growing Grapes in Draught Prone Area* Kadwanchi village is 18 km away from Jalna city, a Marathwada Region in Maharashtra. Marathwada, is mostly a Draught Prone Region. Water scarcity is the major constraint in getting expected yield of crops, to conserve soil and to maintain soil fertility. Krishi Vigyan Kendra (KVK), Jalna, took the challenge and a new watershed development process was undertaken. Firstly, Soil conservation treatments were carried out with priority in order to conserve soil, enhance soil moisture, support vegetative growth, check sedimentation, control run-off velocity. Major soil conservation treatments are trenching and bunding with vegetative cover. Secondly, farmers participation in the entire project by way of contribution was mandatory and ensured. This has resulted into a dramatic improvement in the water tables for around 2000 hectares of Kadwanchi village covering watershed area. The farmers which were growing traditional crops such as millets, started growing grapes. Soil conservation was treated as synonym with water conservation and watershed development. A tour around

Kadwanchi village shows clear sign of prosperity amongst the farmers where almost every farm of around 2-4 hectares was having tractor and every farm was equipped with drip irrigation. The prosperity amongst the farmers was noticeable and KVK, Jalna has estimated per capita income of farmers at Kadwanchi at Rs. 1,27,000/- from meager Rs. 3,264/- before soil conservation measures. Though, the watershed development at Kadwanchi was completed in 2002, the experience is still relevant with the lessons:

- i. Soil conservation treatments with farmers participation is almost equivalent to water conservation;
- ii. Currently, increased water table and continuous water availability is possible in shortest possible time of 1.5 to 2 years with new soil conservation techniques and vegetative growth in shortest possible time.

### **3. Opening up of Commodities Market, Commodities Exchanges**

It is said that present Commodities Market and Exchanges have become costly ornaments. Derivatives trading in combination with the underlying National Commodities Market such as e-NAM would certainly help efficient price discovery mechanism. All Government controls and bans needs to be lifted for trading of commodities in the derivatives market. SEBI, present regulator of the commodities market has policies and regulations which prevents setting up of new exchanges and has created a monopoly situation in the commodities market. These controls and monopolistic practices have infact, created a situation whereby, it appears that these commodities exchanges are costly ornaments. With the removal of Government intervention in the commodities trading, easy entry of commodities exchanges, many regional commodity exchanges, and the commodities market would undergo a sea change. Instead of costly ornaments, they would become useful and essential tool for farmers to understand prices in the coming seasons.

## **15. Conclusion:**

- The launch of various agri missions, Goal of Doubling of Farmer's Income with personal appeal by Prime Minister Narendra Modi has struck the chord at ground level.
- Earlier such programs were restricted to State Governments driven, and limited largely to the extent of reporting to the Centre. Effective planning and monitoring by at Centre level has ensured smooth execution of programs.
- Though specific Agri- missions and programs undertaken by the Ministry of Agriculture Cooperation and Farmers Welfare at the Farmers level there appeared to be a need to consider implementation of Bharat Utthan - recommendations made separately.
- Bharat Utthan has power to transform Agriculture Sector and lead India to prosperity.

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