IASBABA'S YK GIST

FEBRUARY 2018

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Contents

Preface

This is our 35th edition of Yojana Gist and 26th edition of Kurukshetra Gist, released for the month of February 2018. It is increasingly finding a place in the questions of both UPSC Prelims and Mains and therefore, we've come up with this initiative to equip you with knowledge that'll help you in your preparation for the CSE.

Every Issue deals with a single topic comprehensively sharing views from a wide spectrum ranging from academicians to policy makers to scholars. The magazine is essential to build an in-depth understanding of various socio-economic issues.

From the exam point of view, however, not all articles are important. Some go into scholarly depths and others discuss agendas that are not relevant for your preparation. Added to this is the difficulty of going through a large volume of information, facts and analysis to finally extract their essence that may be useful for the exam.

We are not discouraging from reading the magazine itself. So, do not take this as a document which you take read, remember and reproduce in the examination. Its only purpose is to equip you with the right understanding. But, if you do not have enough time to go through the magazines, you can rely on the content provided here for it sums up the most essential points from all the articles.

You need not put hours and hours in reading and making its notes in pages. We believe, a smart study, rather than hard study, can improve your preparation levels.

Think, learn, practice and keep improving! You know that's your success mantra ☺

Good Governance in India

What do you mean by Governance?

Governance is "the process of decision-making and the process by which decisions are implemented (or not implemented)".

Then, what exactly is 'Good Governance'?

'Good Governance', apart from governance, emphasizes on three essential aspects –

- Transparency
- Accountability
- Responsiveness of the administration

United Nations & Good Governance

According to former UN Secretary-General Kofi Annan, "Good governance is ensuring respect for human rights and the rule of law; strengthening democracy; promoting transparency and capacity in public administration." To implement this, the UN goes follows eight principles:

- **Participation -** People should be able to voice their own opinions through legitimate immediate organizations or representatives.
- **Rule of Law -** Legal framework should be enforced impartially, especially on human right laws.
- **Consensus Oriented -** Mediates differing interests to meet the broad consensus on the best interests of a community.
- **Equity and Inclusiveness -** People should have opportunities to improve or maintain their well-being.
- **Effectiveness and Efficiency -** Processes and institutions should be able to produce results that meet the needs of their community while making the best of their resources.

- **Accountability -** Governmental institutions, private sectors, and civil society organizations should be held accountable to the public and institutional stakeholders.
- **Transparency -** Information should be accessible to the public and should be understandable and monitored.
- **Responsiveness -** Institutions and processes should serve all stakeholders.

In 1996, the IMF declared "promoting good governance in all its aspects, including by ensuring the rule of law, improving the efficiency and accountability of the public sector, and tackling corruption, as essential elements of a framework within which economies can prosper".

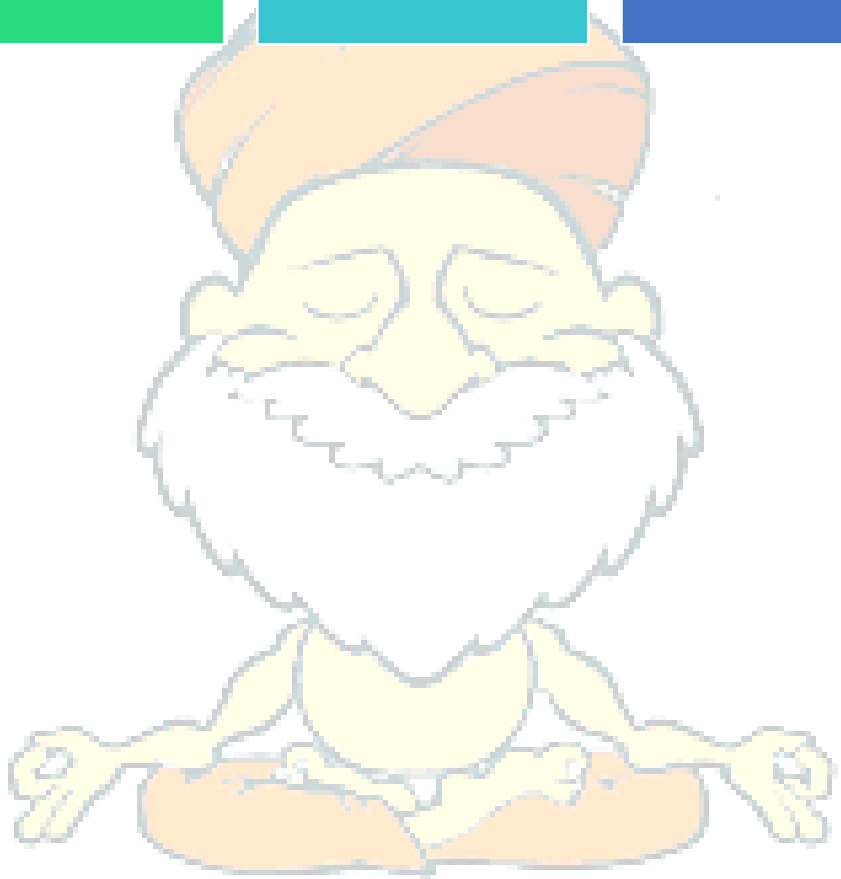
The World Bank is concerned with the reform of economic and social resource control. In 1992, it underlined three aspects of society that they feel affect the nature of a country's governance:

- Type of political regime;
- Process by which authority is exercised in the management of the economic and social resources, with a view to development; and
- Capacity of governments to formulate policies and have them effectively implemented.

The Worldwide Governance Indicators is a program funded by the World Bank to measure the quality of governance of over 200 countries.

It uses six dimensions of governance for their measurements since 1996 –

Voice & Accountability	Political Stability & Lack of Violence	Government Effectiveness
Regulatory Quality	Control of Corruption	Rule of Law



Civil Society and Good Governance

Without an active civil society, the prevalence and institutionalization of good governance is not possible –

How so?

- To apprise people of their fundamental rights and responsibilities
- Instrumental in making people aware about the role of the government and state institutions, as well as the responsibilities of state functionaries
- Provides the forums to the people to debate and discuss their issues and communicate them to the rulers and administrators
- Provides the platforms to the people to maximally participate in the process of governance (key feature of good governance)
- Informs citizens about the exigency of transparency in the process of governance; informed citizenry is a sine qua non for accountability in the governance system and structures of the governance → required public pressures on the governance system specifically on the state functionaries can be exerted so as to be accountable and answerable for whatever they do in the name of public.
- Making people aware of the need and value of the rule of law, as well as apprising government institutions and functionaries of the state about the importance and their respective role(s) in ensuring the rule of law.

Citizen's Charter

The basic objective of the Citizen's Charter is to **empower the citizen** in relation to public service delivery.

Prime Minister John Major introduced the first citizens' charter in early 1990s in UK.

The six principles of the Citizen's Charter movement as originally framed were:

- **Quality:** Improving the quality of services;
- **Choice:** Wherever possible;
- **Standards:** Specifying what to expect and how to act if standards are not met;
- **Value:** For the taxpayers' money;
- **Accountability:** Individuals and Organisations; and
- **Transparency:** Rules/Procedures/Schemes/Grievances.

These were later elaborated by the Labour Government as the nine principles of Service Delivery (1998), which are as follows:-

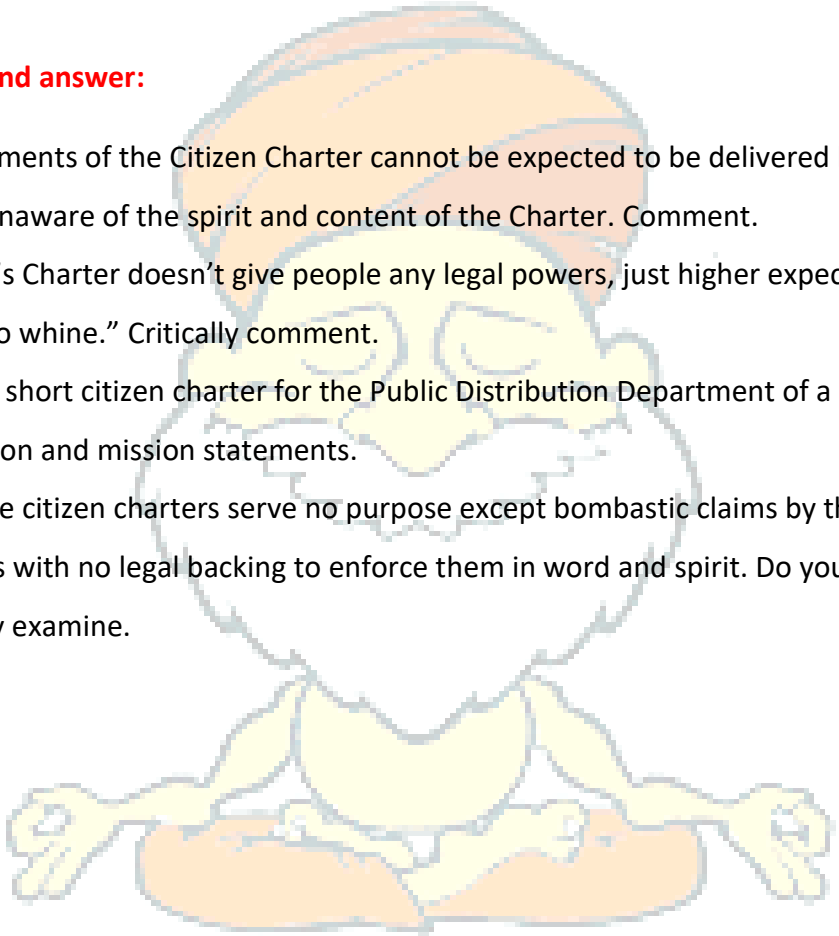
- Set standards of service;
- Be open and provide full information;
- Consult and involve;
- Encourage access and the promotion of choice;
- Treat all fairly;
- Put things right when they go wrong;
- Use resources effectively;
- Innovate and improve;
- Work with other providers

What Citizens Expect From Government Departments/Service Providers

- Reliability, i.e., consistency in performance;
- Responsiveness, i.e., timely service;
- Credibility i.e., having citizen's interest at heart;
- Empathy, i.e., attention to citizen's needs;
- Courtesy and care, i.e., physical evidence of willingness to serve.

Time to think and answer:

1. Commitments of the Citizen Charter cannot be expected to be delivered by a workforce that is unaware of the spirit and content of the Charter. Comment.
2. "Citizen's Charter doesn't give people any legal powers, just higher expectations and power to whine." Critically comment.
3. Frame a short citizen charter for the Public Distribution Department of a state along with vision and mission statements.
4. Tools like citizen charters serve no purpose except bombastic claims by the government agencies with no legal backing to enforce them in word and spirit. Do you agree? Critically examine.



Good Governance in India

'Maximum Governance, Minimum Government' in 'Digital India';

with concentration on "Citizen-First" mantra

IT (Information Technology) + IT (Indian Talent) = IT (India Tomorrow)

Leapfrogging into the India of tomorrow could be defined as ***NT + NT = NT***

That is, New Technology + New Talent = Newer Tomorrow

+ An effective Public Grievance Redressal

- Simplification of procedures, identification and repeal of obsolete/archaic laws/rules, identification and shortening of various forms, leveraging technology to bring in transparency in public interface and a robust public grievance redress system.
- Time bound Digital India Plan
- **'Ease of Doing Business':** The emphasis has been on simplification and rationalization of the existing rules and introduction of information technology to make governance more efficient and effective.
- **Faster means of sharing opinions:** One of the focus areas of Government is to reduce the decision making layers to the minimum while allowing for faster means of information sharing/dissemination. The Government has launched mygov@nic.in - a citizen centric platform to empower people to connect with the Government and contribute towards good governance.
- **Interventions for Resolution:**
    - Timely capture of grievances by creating spaces for their expression
    - Effective redressal of existing grievances by creating robust redress mechanisms
    - Accomplishing grievance free governance by addressing the root cause and working on alternate policies or institutional reforms

Schemes for Good Governance

Sevottam

An administrative measure to improve the quality of public services in India; the term Sevottam comes from the Hindi words "Seva" and "Uttam" and means excellence in service delivery. The citizen-centric approach includes the following components:

- **Citizen Charter and Service Standards -** Citizen Charter is the document where a public sector organization declares its key services along with delivery timelines and requirements.
- **Public Grievances -** the receipt, redressal and prevention of grievances.
- **Service Delivery Enablers -** This includes customer feedback, employee motivation and infrastructure.

UMANG **(Unified Mobile Application for New-age Governance)** is envisaged to drive Mobile Governance in India. It provides a single platform for all Indian Citizens to access pan India e-Gov services ranging from Central to Local Government bodies and other citizen centric services.

- **eTaal** presents quick analysis of transaction counts in tabular and graphical form to give quick view of transactions done by various e-Governance projects.
- **PRAGATI (Pro-Active Governance and Timely Implementation):** Aimed at addressing common man's grievances, and simultaneously monitoring and reviewing important programmes and projects of the Government of India as well as projects flagged by State Governments.
- **National e-Governance Plan (NeGP)** is an initiative of the Government of India to make all government services available to the citizens of India via electronic media

THE MODI PUSH

KEY GOVERNMENT INITIATIVES

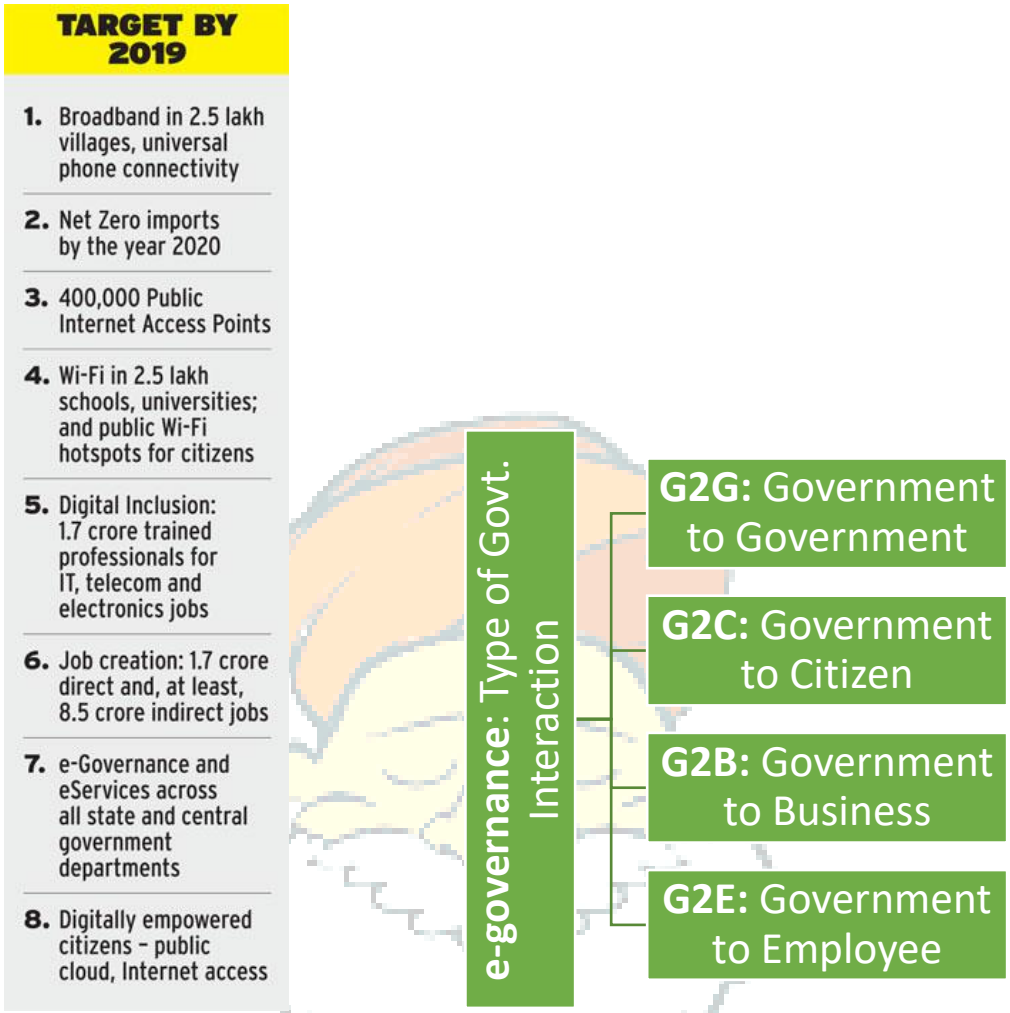
- DIGILocker
- MyGov.in
- Swachh Bharat Mission Mobile App
- eHospital Online Registration System (ORS)
- National Scholarships Portal
- Digitize India Platform (DIP)
- Bharat Net
- BSNL Next Generation Network
- WiFi hotspots
- BPO Policies
- Electronics Development Fund (EDF) Policy
- National Centre for Flexible Electronics (NCFlexE)
- Centre of Excellence on Internet on Things (IoT)
- NASSCOM Cyber Security Task Force

Digital India

Aim: To integrate the people and the government departments, and to ensure transparency in public affairs by providing high speed internet access to the citizens.

- An amalgam of three ongoing programmes: the National Optical Fibre Network (NOFN), the National Knowledge Network and the E-Governance initiative.
- It's being implemented through a PSU, Bharat Broadband Network Limited (BBNL), supervised by the ministries of telecom, power and railways.
- USOF (Universal Service Obligation fund) has the responsibility to finance the DI scheme.

Digital India is not only about the quality of connectivity but also about the functionality of the entire digital movement- connectivity as infrastructure and connectivity as usability.



Centralized Public Grievance Redress And Monitoring System (CPGRAMS) is an online web-enabled system over NICNET developed by NIC, in association with Directorate of Public Grievances (DPG) and Department of Administrative Reforms and Public Grievances (DARPG). CPGRAMS is the platform based on web technology which primarily aims to enable submission of grievances by the aggrieved citizens from anywhere and anytime (24x7) basis to Ministries/Departments/Organisations who scrutinize and take action for speedy and favorable redress of these grievances. Tracking grievances is also facilitated on this portal through the system generated unique registration number.

"Digital India is a journey ushering digital inclusion for digital empowerment aided by digital infrastructure for digital delivery of services. India is the hotspot of digital innovation across sectors and stands on the cusp of the fourth industrial revolution with new-age technologies, which are disruptive in nature, and poised to have a deep impact on the way we live and work. Digital India has not remained merely a government initiative, but has become a way of life."

- Prime Minister, Narendra Modi

Note:

SAKHI

- To provide all kind of assistance including legal, police, medical help, counselling, temporary support services to women affected by violence, a one-stop centre

SHe-box

- Sexual Harassment Electronic Box - to ensure "effective implementation" of the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
- To enable women employees of the Central government to file complaints related to sexual harassment at the workplace

Nari

- The National Repository of Information for Women
- To make information on all government schemes and initiatives for women more easily accessible
- Endow women with the power of information to build their life skills and facilitate them in taking full advantage of the services provided by the government.

Must Read Articles

Accountability & Ethical Governance

Mindmap: https://iasbaba.com/wp-content/uploads/2015/05/Accountability-and-Ethical-Governance.jpg

Solve:

1. Can accountability ensure ethical governance? Substantiate with the help of suitable examples.

2. Accountability is the glue that ties commitment to results. Do you agree? Discuss by giving examples.

3. Accountability is the life blood of a democracy. Comment.

4. What is the role of transparency in good governance? Do you think a less transparent system is more prone to corruption? Examine.

5. Innovative models for tracking government programs and disseminating this information to citizens is imperative to strengthen public accountability. Discuss.

6. For the success of e-governance and superior service delivery, it is imperative that the government agency focuses on overall citizen experience. Comment.

7. Citizen's right to information is increasingly being seen as an important instrument to promote openness, transparency and accountability. Why? Examine.

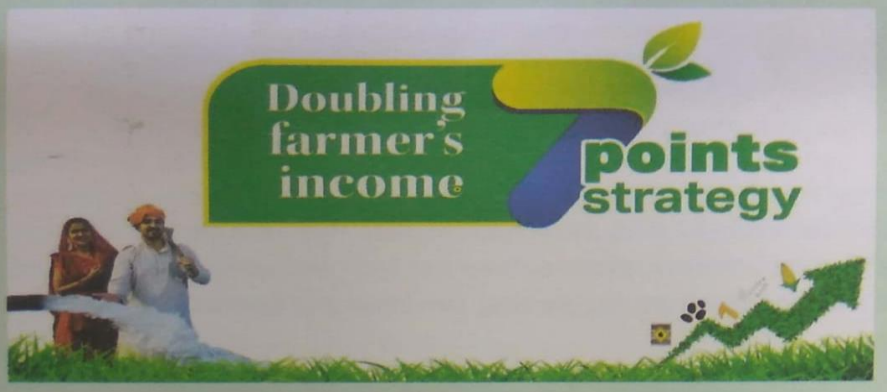
Digital India

Read: Digital divide: Reaching out to those who are at the bottom of digital pyramid

Solve: What is digital divide? Why is it an impediment to e-governance initiatives? Illustrate with the help of suitable examples. Also suggest measures to bridge the digital divide.

Government's aim is DOUBLING FARMERS' INCOME BY 2022

Seven-point strategy by PM for 'Doubling Farmers' Income'



The Prime Minister, Shri Narendra Modi breaks ground for resilient rice field laboratory, at the International Rice Research Institute (IRRI), in Los Banos, Philippines on November 13, 2017.

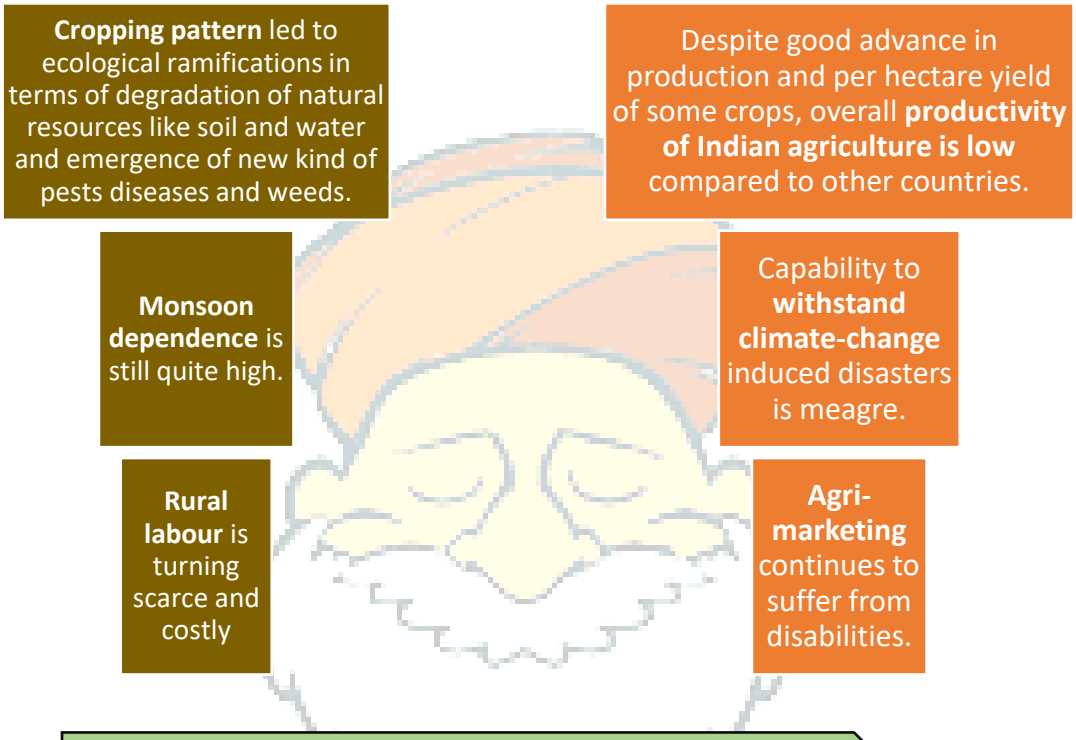
Prime Minister has set a target to double the farmers' income by 2022. And to achieve this target, he has advocated a seven-point strategy:

1. Special focus on irrigation with the aim of "Per Drop More Crop".
2. Provision of quality seeds and nutrients based on soil health of each field.
3. Large investments in Warehousing and Cold Chains to prevent post-harvest crop losses.
4. Promotion of value addition through food processing.
5. Creation of a National Agriculture Market,
6. Introduction of a new crop insurance scheme- 'PM Fasal Bima Yojana' to mitigate risks at an affordable cost.
7. Promotion of ancillary activities like poultry, beekeeping, and fisheries.

Lets go through how it can be made possible->

EVERGREEN REVOLUTION

The concept of evergreen revolution is a sequel to the green revolution of 1960s which made the country self-sufficient in food grains and ended its risky dependence on food aid and grain import. However, it also caused some distortions in



There is a need for transforming Green Revolution into an ecologically sound and sustainable evergreen revolution.

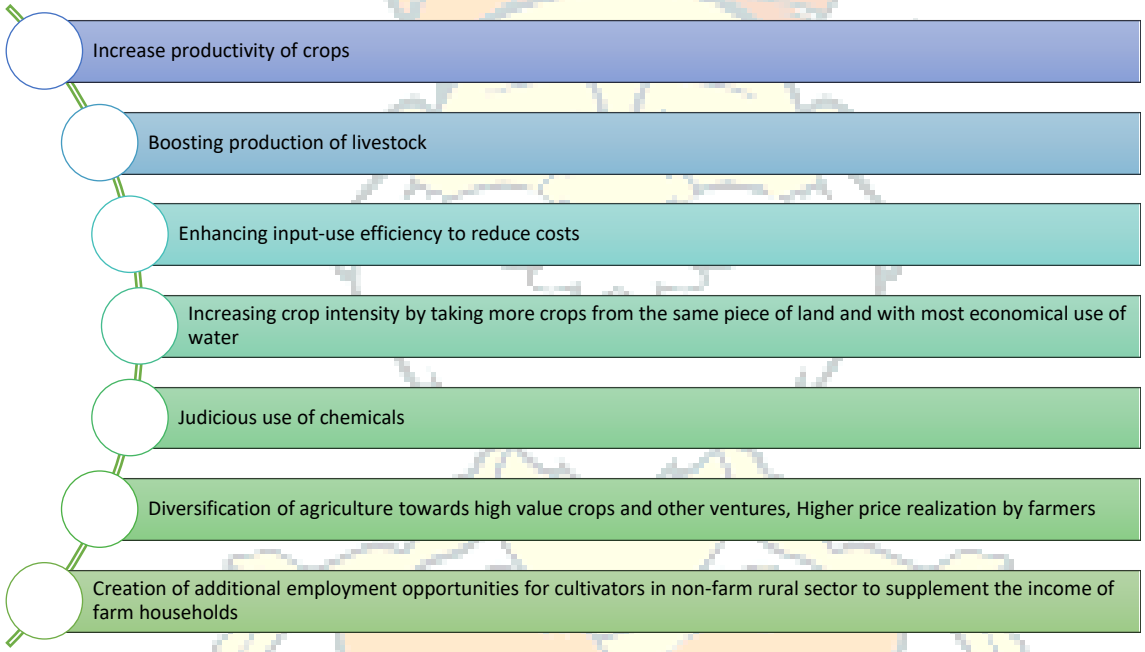
The green revolution should therefore be treated as incomplete unless it becomes an all-round and all-encompassing green revolution that leads to copious production and rural prosperity.

Adherence to scientific principles of soil and plant health management in order to perpetuate the benefits of enhanced productivity over the longer run should be the way forward.

Evergreen revolution is focused sharply on **producing more from less land** and **with lower use of water** and **at reduced overall costs**. This may be possible by **integrating traditional systems** of farming **with the modern and scientific ways of agriculture**.
The **use of chemical fertilisers should be strictly need-based** as determined by the requirement of the crop and land fertility.

There is need of crafting strategies for raising farmers' income through evergreen revolution. NITI Ayog is regularly coming out with ideas to help the government to reform and transform agriculture into a sustainable and lucrative business occupation that can contribute to the country's overall economic development.

NITI Ayog has put forth a multi-pronged agenda for agricultural development. It involves



Also, NITI Ayog has shortlisted 5 broad aspects of agriculture that need immediate attention:

1. **Productivity in terms of per hectare output of farm ventures**
    - This requires development of new cost effective technology and transferring it to the farmers, besides empowering them financially to put this into practice.
2. **Most farmers at present do not get remunerative prices for the crops due to the limited reach of the MSP mechanism across the farm community**

- The procurement based farm market intervention has confined to few crops and in handful of states and thus manages to deliver only a small fraction of the final price to the actual producers.
- Thus a sizable chunk of money spent by customers is cornered by large number of intermediaries in the marketing chain.

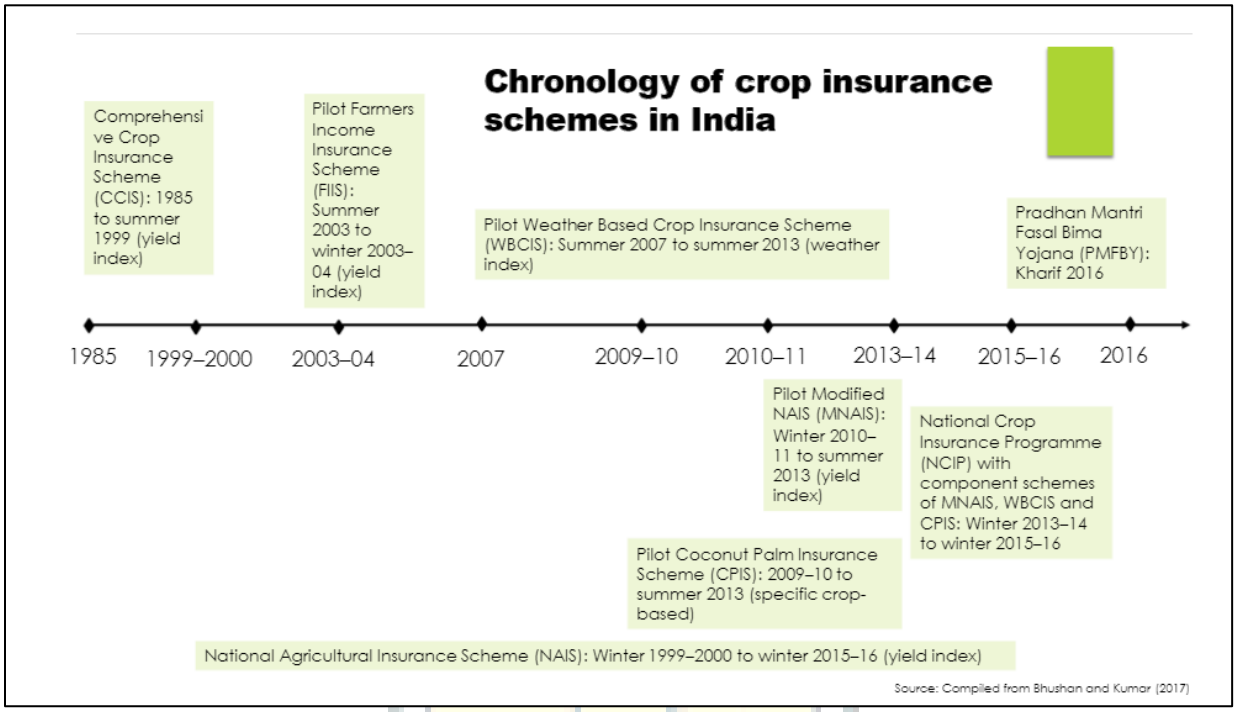
3. **Size of farm holdings of majority of farmers has shrunk to unviable levels thereby nudging farmers to leave farming and look for jobs elsewhere.**
    - Amendment of land leasing laws to legalize land leasing without the fear of losing its ownership may help t in consolidation of land holdings at operational levels ad attract fresh investment in farming.
4. **Present relief measures and loss reimbursement to the farmers at the time of natural disaster is inadequate and suffer from operational and procedural inefficiencies and delays**
5. **Agricultural potential of the eastern region is grossly underexploited.**
    - Its unique agro-climatic conditions for the production of several products needs to be utilized.

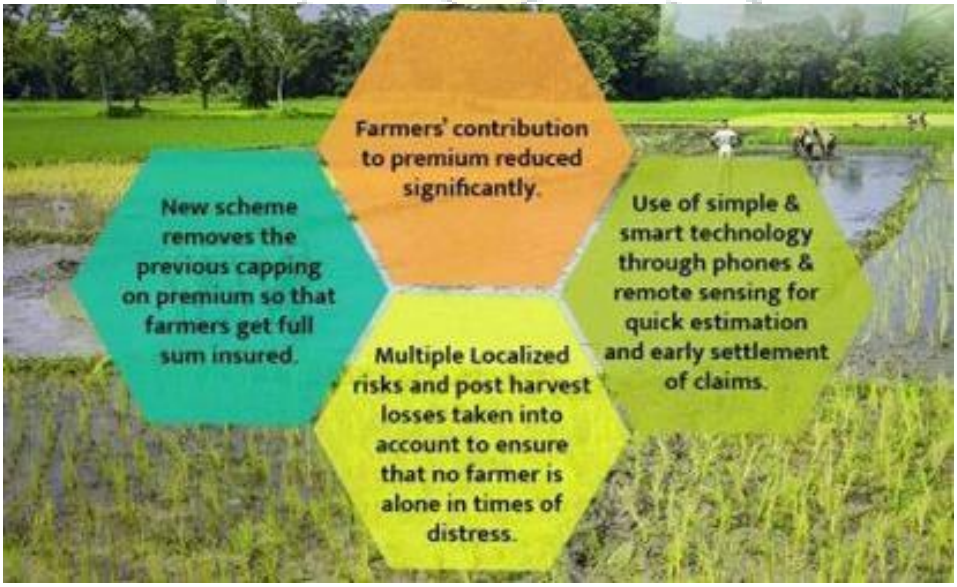
For these to be addressed, there is need of

- Greater involvement of National Food Security mission or boosting production of pulses
- Cluster demonstrations on promotion of improved packages of practices for pulses cultivation to optimize yields
- Upgrade quality of seeds, especially of the farmers' self-produced and saved seeds, the government is already running a seed village programme.
- Model contract farming Act for the guidance of state government.
- Elimination of middlemen and freedom from routing the output thorough the regular mandis.

The success of the effort to transform the green revolution into an evergreen revolution or an ever-enduring revolution would depend largely on how well the mooted programs and schemes are implemented. Technology driven efficiency and precision would have to be byword for every farm operation to transform green revolution into an evergreen revolution.

PM FASAL BIMA YOJANA





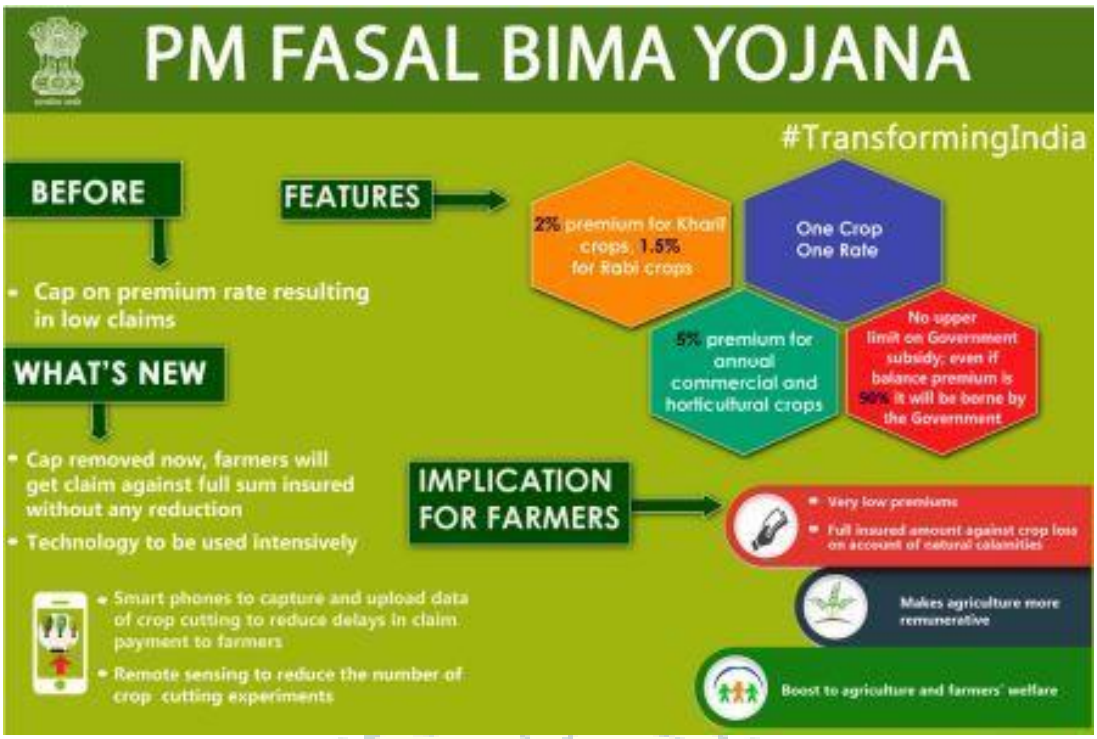


Image credit: Vikaspedia

Challenges

- Gaps in crop loss assessment
- High actual premium rates
- Inadequate or delayed claim payment

NATIONAL AGRICULTURE MARKET- ONE MARKET, ONE INDIA

Since the launch of green revolution in mid 1960s, India has made good progress and has achieved food security. Now it is time for addressing issues relating to the post-production activities including food processing and marketing.

Government of India is committed to the welfare of the farmers and the budget 2016-17 makes an explicit announcement to double the income of the farmers in the country by year 2021-22.

The post-harvest management including agricultural marketing has not kept pace with the changes in economy, particularly relating to setting up of an efficient supply chain.
Thus there are **new challenges in terms of finding an efficient market for the marketable surplus**. There is enormous concern over several aspects of our agricultural marketing system.

Agricultural marketing is administered by the states as per their agri-marketing regulations under which **state is divided into several market areas**, each of which is ad**ministered by a separate agricultural produce marketing committee** which imposes its own marketing regulation. As a consequence, 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 end up escalating the price for the consumers** without commensurate benefit to the farmer.

Backed by these reforms, a pan Indian online trading platform is expected to promote uniformity and streamlining of procedures across the integrated markets, remove information asymmetry between buyers and sellers and promote real time price discovery.

NAM is pan India online trading portal which seeks to network the existing APMC and other market yards to create a unified national market for agricultural commodities. NAM is a virtual market but it has a physical market at the back end

The NAM portal will provide a single window service for all PAM related information and services. This will include commodity arrivals and prices, buy and sell trade offers, provision to respond to trade offers, among other services. While material flow (agricultural produce) shall continue to happen thorough mandis, an online market would reduce transaction costs and information asymmetry.

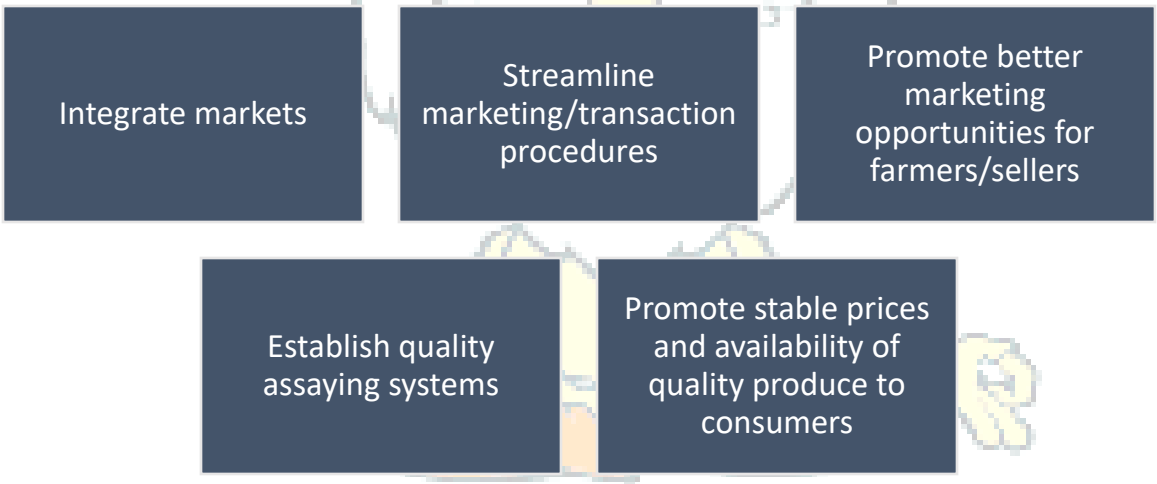
Marketing reforms mandatory for joining e-NAM

The scheme being linked to agricultural marketing reforms, the states/UTs need to undertake mandatory reforms in their APMC ACT in respect of following three areas to avail the assistance under the scheme.

1. **Provision of single trading license to be valid across state**
    - There should be a single trading license t any eligible person from across India irrespective of one's domicile to enable one to trade through e-NAM portal in the markets across states and UTs.
2. **Single point levy of market fee across states**
    - There could be single point levy of market fee for wholesale trading of same produce across the states. Further market fee should be leviable on subsequent wholesale transactions of the same products.
3. **Provision for e-auction/ e-trading as a mode of price discovery to be facilitated**

State agricultural marketing department and concerned APMC shall provide necessary legal framework and required infrastructure connected thereto to promote e-NAM.

Objectives of the scheme are



Implementation strategy- Ministry of agriculture, department of agriculture, cooperation and farmers welfare have mandated **Small Farmers' Agribusiness Consortium (SFAC)** to act as the lead implementing agency for NAM.

Role of selected partners

- Design develop test implement maintain manage enhance and modify application forming e-NAM
- Provide ground level support to integrated mandis , provide training to various users
- Set up help desk to answer queries and handle issues
- Marketing and usage of the portal,
- Generation of MIS report progress of implementation
- 579 mandis across 16 states and 2 UTs had been approved by the GI for integration with e-NAM.
- 470 mandis across 14 states has been already integrated.
- Besides English and hindi, e-NAM portal is available in regional languages like Gujarati, Telugu, Marathi and Bengali. Website are also available in regional languages of Gujarati, Telugu, Marathi and Bengali, Tamil, Odiya, English and Hindi

A mobile application for e-bidding is launched which can be downloaded. e-NAM app provides the facility of viewing the mandi wise arrival ad price information to farmers and facility of bidding using their mobile from anywhere to traders.

Challenges faced

Table 3: Cold-Chain Infrastructure Gap in India in 2015

Type of infra-structure	Infrastruc-ture require-ment *(A)*	Infrastruc-ture created *(B)*	All-India gap *(A-B)*
Pack-house	70, 080	249	69,831
Cold-storage (Bulk) in million metric tones	341.64	318.24	3.28
Cold storage (Hub) in million metric tones	0.94		
Reefer vehicles in numbers	61826	9000	52826
Ripening chambers in numbers	9131	812	8319

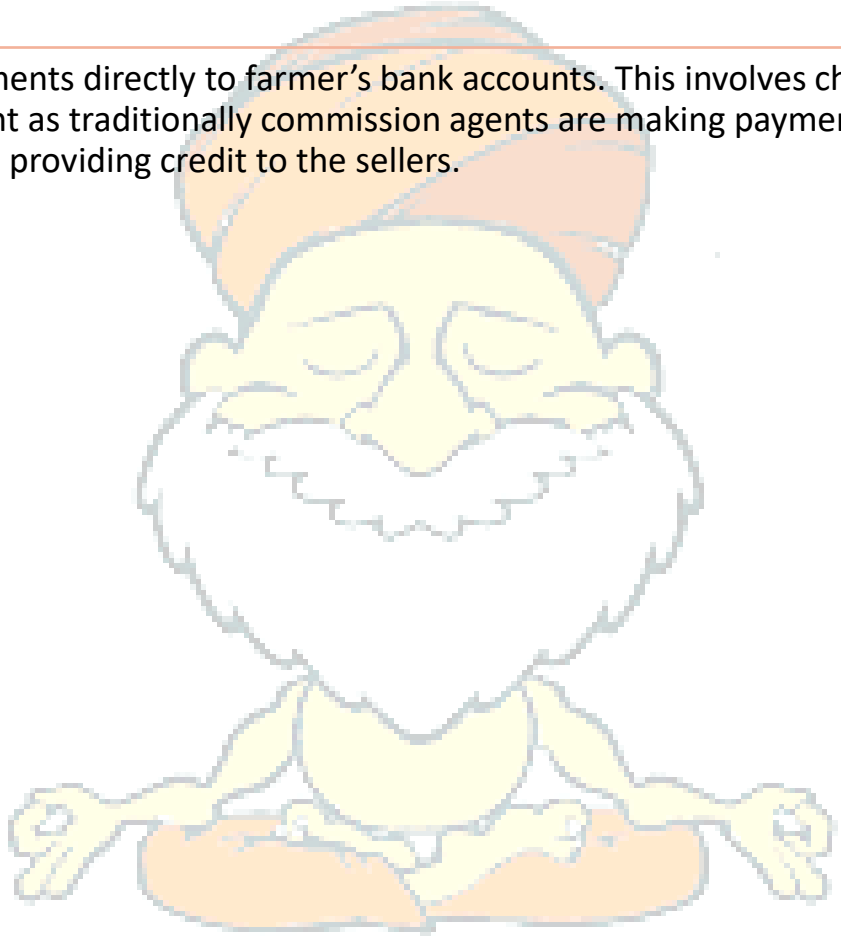
(Source: NCCD (2015)

Non-uniform quality standards across various states

States are required establish the appropriate quality testing facilities equipped with the trained manpower.

States are required to issue unified trade licenses in sufficient numbers to the traders.

Online payments directly to farmer's bank accounts. This involves change management as traditionally commission agents are making payments to the farmers and providing credit to the sellers.



SOIL HEALTH PRESERVATION

Soil is a dynamic system, consisting of organic and mineral matters, air, water, and living organisms along with their interactive processes. Soil is formed through a complex process which takes thousands of years to make an inch of soil. But it can be easily be contaminated, eroded and destroyed in a very short time, if managed unscientifically. Increasing population and sharing land resources for agricultural is tremendously increasing pressure on soil.
There is need to understand soil health and the systems that affect it.

Soil heath

Soil health concept involves integration of physical, chemical and biological properties of a soil and role of this harmonious blend in sustaining growth, productivity and environmental security.
Thus, soil is an ecosystem full of life that needs to be carefully managed to regain and maintain the ability to function optimally.

A soil that is able to optimally sustain its native/acquired productivity potential and render ecological services is said to be in good health. With following characteristics

- **Good soil tilt** i.e. crumbly, well structures, dark with good amount of organic matter
- Has **sufficient depth** through which roots can grow to find water and available nutrients.
- Has **good water storage** and **good drainage** capabilities
- **Sufficient nutrient supply** but not imbalance or excess of nutrients to achieve optimal production and also for balanced cycling of nutrients within the ecosystem.
- Should contain **abundant population of beneficial organisms** that help In cycling of nutrients, decomposing of organic matter, maintenance of soil structure, biologically suppressing plant pets tec.
- Should be **free of potentially harmful chemicals** and toxins.

Current status of soil health in India
In India, about 18% and 15% of world's human and livestock population have to be supported by 2% of world's geographical area and 1.5% of forest and pasture land, respectively.
This pressure has resulted in intensive agriculture, which in turn has resulted in reduced soil fertility, low farm organic carbon content, deficiencies of nutrients, reduction in quality and availability of water, soil erosion and degradation leading to deterioration of soil health.

National academy of agriculture sciences-

Out of total 142mha net sown area of India (2010), around 105 mha farm land has been degraded by various factors like soil erosion, 7.3. mha by water erosion, 12.4 ha by wind erosion, followed by soil acidity, soil alkanality, soil salinity and water logging.

Soil health- causes of deterioration	Population pressure- due to high population, the soils have to be exploited beyond carrying capacity to feed the proliferating humans and also for production of clothing material.
	In many cases, the fertile lands are also used to build houses, roads and other infrastructure.
	Decline in forest and tree cover. Forest and tree cover prevent erosion, helps in soaking of precipitation/rainfall and building the soil fertility. Therefore, the decline in forest n tree cover is leading to erosion of fertile soil layer
	Intensive soil farming
	Intensive copping system requires exhaustive tillage which breaks down the soil organics carbon SOC to C02 and removes plant cover
	Indiscriminate and imbalanced use of chemical fertilizers and failing to use of organic manure further hastens the processes of soil quality degradation.
	Mounting use of pesticides.
	Intensification of agriculture is resulting in indiscriminate use of pesticide. These pesticides persist in soil and residues influence the natural nutrient cycles due to deadening effect on soil organisms.
	Decline in soil organisms results in decreased organic matter dynamics, soil fertility and maintenance of air and food quality.

Strategies of soil health management

1. Conservation agriculture approaches
    - Diversified crop rotations- use of different crops like cereals and pulses to improve nutrient use efficiency, imp water quality and conservation of soil water.
    - No tillage- no or minimum tillage is used for growing crops without disturbing the soil as it conserves water and impoves water use efficiency
    - Residue, retention/incorporation- applying plant residues to the soil surface to compensate for loss of residue due to excessive tillage.
2. Nutrient management approached
    - Balanced use of fertilizers- use of fertilizer has to be based on 4R- right time, right place, right dose, and right source. Balanced fertilization includes application of chemical fertilizers in conjunction with organic manures and bio-fertilizers.
    - Soil test based fertilizer recommendation- reduces overuse of fertilizers and increases the fertilizer use efficiency

3. Application of bio-fertilizers- helps in nitrogen fixing, phosphate solubilizing and mobilizing microbes.

Soil health card and soil health

Soil health card was launched in 2014 which aims to promote integrated nutrient management INM through judicious use of chemical fertilizers including secondary and micro nutrients in conjunction with organic manures and bio-fertilizers.

Soil Health Card (SHC) is a practical report that can enable anyone interested in their soil to monitor health.

It gives information on the status of soil with respect to 12 parameters

- MPK macro nutrients
- S secondary nutrient
- Zn, Fe, Cu, Mn, Bo- micro nutrients
- pH, EC, OC physical parameters.

Based on this, the SHC indicates fertilizer recommendations and soil amendment needed to maintain soil health in the long run.

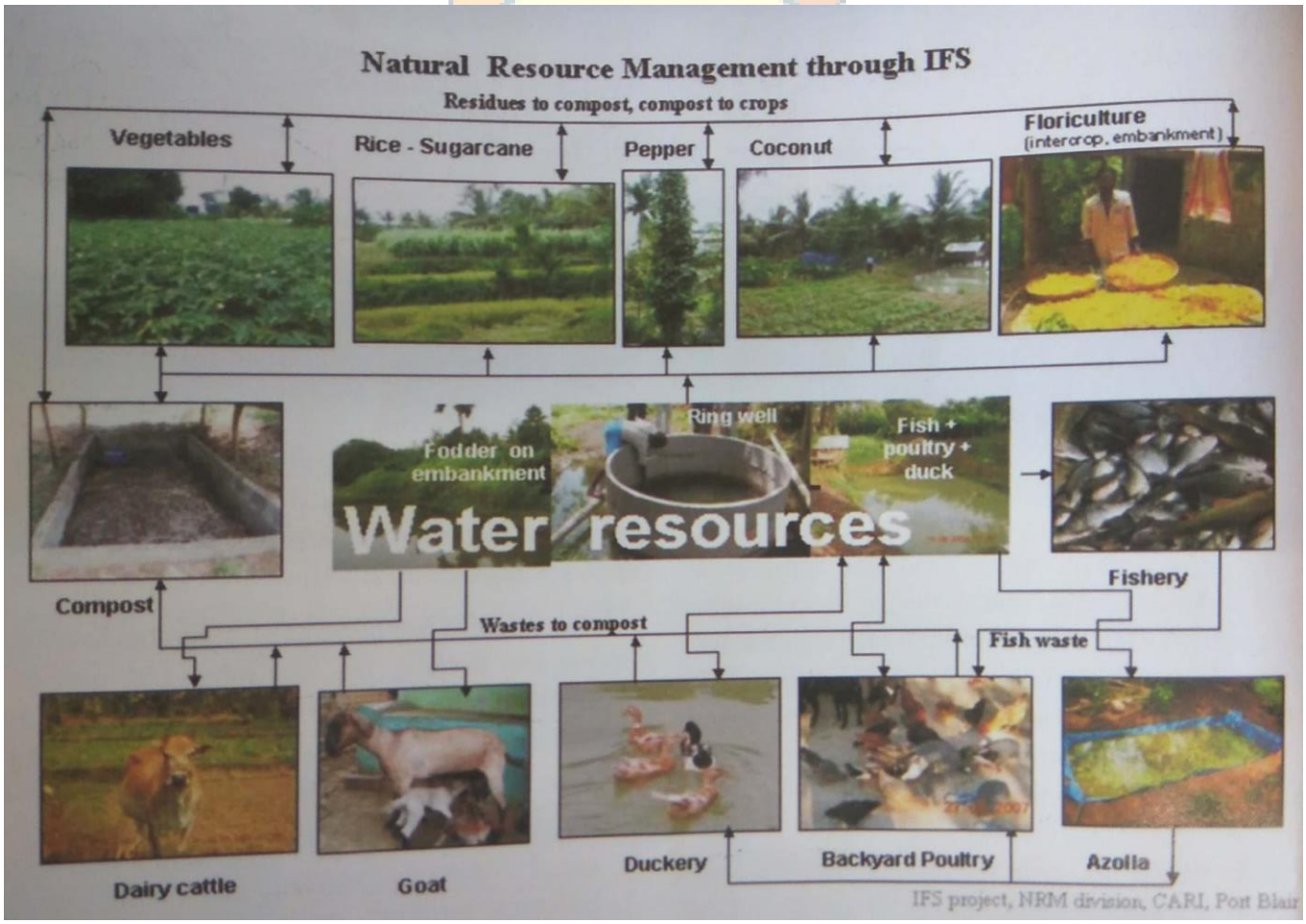
The government's active involvement in acknowledging the importance of managing soil health has created a major impetus for restoring and maintain soil health.

Soil health cards are being popularized among farmers for maintenance of soil health. Integration of government policies, research institutes and extension agencies are needed for successful implementation of the soil health restoration and preservation initiatives.

INTEGRATED FARMING SYSTEMS- A NEW APPROACH

Small farm agriculture (upto 2 ha) holds the key to ensuring food and national security of India and nurturing them in right perspective with sustainable farming systems are essential for rural prosperity. **These farms are characterized by low income** (at all-India level, avg monthly income per agricultural household during 2012-2013 was estimated to be Rs. 6426). This has led to **smaller re-investment** in farm development, **seasonal employment**, **higher dependency for market inputs** especially for seeds, fertilizers, pesticides and large machineries like mechanical harvesters, **distress sale due to low storage** capacity and **market price**.

To change the status of these farmer categories, it is essential to **enhance the income and employment opportunities within their household (land less) and farm (marginal and small)** by proportion and adaption of efficient enterprises like animal husbandry, horticulture, apiary, mushroom cultivation, fisheries etc.



IFS approach-

A judicious mix of two or more components using cardinal principles of minimum competition and maximum complementarity with advanced agronomic management tools aiming for sustainable and environment friendly improvement of farm income, family nutrition and ecosystem services.

The essential components of integrated farming systems are keeping the soil alive and provide sustainable support to farm and family through effective management of natural resources.

The intentional integrated systems address the multiple objectives of increased production, profit, cost reduction through recycling, family nutrition, sustainability, ecological security, employment generation, economic efficiency and social equity.

Holistic and innovative approaches

The holistic approach **involves identification of constraints using participatory rural appraisal and other techniques and addressing through scientific approach** for improving the productivity, income, cost reduction, environment benefits.

Innovative approach encompasses holistic improvement of existing system bedsides **diversification of existing components by way of introducing new components/enterprises/modules in to the system**.

Some Innovations in agriculture include-

- Bio fortified rice
- Bio fortified maize
- Bio fortified pearl millet
- Iron rich bean
- Vitamin A rich sweet potato

Need for farming system diversification spatial and temporal expansion in small farms is possible by integrating appropriate farming systems components requiring less space and time and it can ensure diversified options of food and nutrition to the rural mass besides providing insulation against market price fluctuations, weather vagaries, reducing dependency on market for inputs, ensuring periodic income and employment to the farmer

Multiple benefits of IFS

- **Productivity enhancement**- increase yield and economic time by virtue of intensification of crop and allied enterprise.
- **Income enhancement**- IFS as a whole provides opportunity to make use of recyclable waste material of one component as input for other at the least or not cost at farm level. Thus there is a possibility for reduction of production cost of enterprises from one to another. Recycling also reduces market dependency on inputs.
- **On farm employment generation**- integration of other components with cropping increases the labour requirement and thus provides scope of employ family labour round the year without much lean and peak demand for labour.
- **Soil health improvement** through recycling- residue recycling is an integral part of the farming systems. Considerable quantity of nitrogen, phosphorous and potassium besides micro nutrients can be generated within farm through recycling
- **Multiple uses o resources**- multiple uses of water for household, irrigation, dairy, poultry etc is best example. Small and medium sized water bodies can be brought under

multi-component production systems using in and around areas which will ultimately lead to improved income, nutrition and livelihood and livelihood of small farm holdings.

- **Risk reduction**- IFS helps to reduce risk involved in farming especially due to market price crash as well as natural calamities.

TECHNOLOGICAL INNOVATIONS FOR AGRICULTURE

The global population is projected to be nine billion by 2050 which need to be almost double to meet the global food and fibre demand. Doubling food and fibre production and sustaining the production at that level are the major challenges.

Intensification of agriculture, using high-yielding crop varieties, fertilization, irrigation and crop protection remain the most likely options to combat these challenges.

In the past, the emphasis was on improving potential yield, but today, there is increased emphasis on improving the nutritional value of foods – eg. Protein content in grain, essential amino acids, content of other minerals, reducing post harvest losses, improving stress tolerance and reducing reliance on chemical crop protection products.

Several system-research tools relating to information technology have become available for fertilizer management. with introduction of GIS< GPS and remote sensing, farmer can now refine nutrient recommendation and water management models to the site-specific conditions of each field.

Technological innovation for water management as water is most critical natural resource for human survival and suitable development. Three major challenges

1. More crop per drop of water by efficient and productive use of available water resources in irrigated areas
2. Increased productivity of sub-productive challenges ecosystems i.e. rainfed and waterlogged areas
3. Making use of water for agriculture production

Following practices will save water resources and enhance productivity

- **Deficit irrigation supplies**= under limited water availability condition, irrigation strategies based on meeting the partial crop water requirements should be adopted for more effective and rational use of water.
- **Reducing crop water demand** promote techniques such as precision irrigation and water saving crop-production technologies, rationalization of subsiding electricity for irrigation including system of pricing and incentives for groundwater use, use of hydrogel, appropriate polices, regulatory mechanism and governance.
- **Pressurized irrigation system**- it includes both drip and sprinkler irrigation as an efficient meth in saving water and increasing water-use efficiency about 35-40 per cent. It indicated that the drip irrigation was more effective in soil with poor water retention and higher drainage rate.

- **Subsurface drip irrigation**- it uses buried drip tubes to meet crop water needs. Since the water is applied below soil surface, the effects of surface infiltration such s crushing, saturated conditions of ponding water, and water losses via evaporation and surface runoff are eliminated. Water is applied directly to the root zone of the crop as opposed to the soil surface where most weed seeds hibernate.
- **Resource consorting technologies**- technologies like zero tillage, bed planning have shown promise in enhancing water productivity.
- On farm reservoir rainwater hard covered under MGNREGA vesting and efficient water use are inevitable options to sustain rainfed agriculture in future. OFR at the individual farm level has been very low, particularly for growth proofing through life saving irrigation of rainy season crops.
- **Tank cum well system**- it was conceptualized for micro-level water resources development on water shed basis for plateau areas with slope of 2-5%.
- **Other oil conservation techniques**- contour graded bunding, continuous contour or staggered trenches, water harvesting structures and drainage line treatment

Small farm mechanization

Improved access to farm machinery for sowing, harvesting etc.

Custom hiring of agricultural machinery is an appropriate institutional arrangement which can promote mechanization of agricultural operations on small farms.

Precise nutrient management

Precision agriculture involves the integration of the modern technologies to allow farm producers to manage within field variability to maximize the benefit-cost ratio.

Variable rate technology (VRT) available with farm implements, such as fertilizer applicators and yield monitors, has evolved rapidly and has fostered the growth of precision agriculture.

Conservation Agriculture

It is a system of raising crops without tilling the soil while retaining crop residues on the soil surface. It is a concept of optimizing crop yield, economic and environmental benefits. 3 key features

1. Minimum sol disturbance by adopting no-tillage and reduced traffic for agricultural operations
2. Maximum soil cover by leaving and managing the crop residues on the soil surfaces
3. Adopt spatial and temporal crop sequencing to derive maximum benefits from inputs

Climate smart cropping

Developing cultivators resistant to climate change has become important adaptive mechanism for eg. Crop varieties that are resistant to lodging, changing of planting dates to minimize the effect of temperature increase, avoiding the flowering period to coincide with hottest period.

Integrated crop management

It suggests the use of good agricultural practices which is an alternative system of crop production.

It combines the best f traditional methods with appropriate modern technology for balancing the economic production of crops with positive environmental management.

VALUE ADDITION THROUGH FOOD PROCESSING

Food processing is where agriculture meets industry. The process industries can play a vital role in achieving the objective of 'doubling farm income'. Diversification of diets, globalization of diets, urbanization, rising share of women in work force, nuclear families, juxtaposed with supply side factors like changing policy perspectives including digitalization and export opportunities propel growth of food processing sector in India.

Innovations in midstream of the value chain can have significant impact on agricultural performance and might potentially benefit producers and consumers alike. Concept of cold chain was non-existent until the late nineties and post-harvest losses were very high with poor infrastructure. Transport cost today also are relatively high. Thus leading scholars have included that **importing from other countries is cheaper than transporting from one part of country to another**.

Evolving Food Policy

The food policy in India has mainly focused on the increasing the production with a view to subsidize imports which became a common feature during the immediate post independent years until the eighties.

Thus the issue of processing the food did not arise as a policy question. On the other hand the industrial policy since second five year plan concentrated on the heavy industries required to build up the necessary infrastructure for the industrial development. The consistent rise in per capita income and shifting of the incomes after 1981 to a higher growth path led to rise in middle classes who have the purchasing power to buy the processed foods

Thus attempts started to refresh the sector by forming a separate ministry in 1988. Thus India has been a late entrant in food processing sector and international market. Only after full scale liberalization in 1991, several policy initiatives were taken. The concept of food park, agri-export zones, mega food parks, cold chains and human resource development have been initiated.

Statistics on food processing sector

The scourge of organized food processing sector continues to be very low value added at just 12% in 2013-14 and much less in some of the important industries like vegetable oils and fats- 5%, dairy products- 10%, grain mill products- 8.6%, and fish products- 7.7%.

Leading industries in terms of gross value added were malt liquors- 36.2%, soft drinks- 32.1% and spirits and alcohol- 28.3%.

In regard to the employment, leading industries changes to other food products- 25.3%, grain mill products- 18% and sugars- 15.4%.

The main paradox in food processing industries is the dichotomy between organized and unorganized segment in regard to output and employment. While output and value added are higher in the organized sectors, unorganized segment with one-fifth of output employs three times higher employment.

Food processing industries operate at just 45% of the fixed capital per enterprise relative to the average of all manufacturing industries and produce 82% of output/person compared to manufacturing average.

The sector witnessed an impressive growth of 12% per annum from 2004-09 from 6% in previous two decades, but the growth momentum was lost after 2011 and had been showing signs of recovery in past few years. It needs further analyses to understand the underlying cause for this decline of share in manufacturing. **It needs to be underlined that the sector has been growing share of organized segment in output and value added has been going up showing consolidation in the sector.** The growth of food processing and increasing exports from this segment of value chain has been increasing its interaction with other segments like farmers for sourcing of raw materials either directly through contract farming or through wholesalers and other means.

Direct links between agribusiness firms and farmers will help contract farming to be more inclusive and positive outcomes.

Way forward

Food processing is the sector with largest share of employment in the organized segment and third largest in the unorganized segment. The productivity of these sectors need improvement. There is a need to infuse more technology in both segments with liberal revision of credit, value of land poses the biggest threat to unorganized manufacturing in food processing sector. Recent initiatives like mega food parks, and cold chain schemes are well conceived and showing signs of positive impact.

ORGANIC FARMING PRACTICES IN INDIA

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health including biodiversity, biological cycles and soil biological activity.
It emphasis the use of management practices in preference to the use of on-farm inputs, taking into account regional conditions which require locally adopted systems.

Since organic farming address soil health, human health and environmental health and is eco-friendly, it is one of the best options for sustainable crop production and crop yields/

Three categories of organic farmers in India

1. **First category** of organic farmers are those who are in no input or low input use zones, for them organics is a way of life and they practice it as a tradition.
2. **Second category** of farmers is those who have recently adopted the organics in the wake of ill effects of conventional agriculture
3. **Third category** comprise of farmers and entrepreneurs who have systematically adopted the commercial organic agriculture to capture the emerging market opportunities at premium prices.

Area under organic cultivation in India is 5.71 million hectares 201516 out of which cultivable area is 1.49 mha, and rest 4.22 mha under forest and wild harvest.
Madhya Pradesh has the highest area under organic farming in India followed by Maharashtra and Rajasthan.

Basic Necessities

- The soils of organic farming should be friable and have organic content with ideal 6.5 to 7.5 ph to help microbial activity, called as living soil.
- The manures for organic farming should have minimum 12% organic carbon, .8% nitrogen, .4% phosphorous .4% potash and carbon and nitrogen in ratio 20:1
- Farm yard manure, poultry manure, cow dung slurry animal urine crop residue green manures and green leaf manures are permitted in organic farming.
- India has sufficient availability of organic manures. Recycling of organic wastes is not only an ecological necessity but compulsion.
- The choice of organic manure application is in organic farming is based on availability of the manure and soil test reports. In general, it is applied based on nitrogen equivalent to recommended dose of inorganic fertilizers of the crops. Some of the organic manure preparation are
- Non edible neem cakes, mahua cakes,. The oil cakes help in reduction of insect pests damages, soil borne out of root diseases and nematodes infection.

- Vermicomposting- digested material of the organic wastes by the earthworms
- Bio-fertilizers- rhizobium lives in root nodules of leguminous plants and fixes atmospheric nitrogen in crops in redgram, greegram, blackgram, groundnut and soyabean.
- Blue green algae azolla, azatobactoer can also fix atmospheric nitrogen.
- Other methods are panchgavya and jeevathrumam- components involving cow products such as cow urine, cow dung, etc. long with other natural ingredients.
- Agroforestry- green manures, fodder species and pest repellant are better choice for agroforestry.
- Pest management- selection of resistant crop varieties, timely plantation, crop rotation with non-hot crops, inter and mixed cropping techniques, mulching with crop residues.
- Weed controls achieved through in-situ incorruption with rotovator, stale seedbed technique, hoeing, cover cropping, poly cropping, hand weeding etc.

ROLE OF WOMEN IN AGRO-ECONOMY

According to food and agriculture organization, women's contribution to agriculture in India stands at over 32%. Agriculture thus has played big role in bringing women close to government's initiatives for updating skills in land management, ensuring or providing training in traditional female skills visa-a-vis farms, credit progrmme for micro-enterprises and income generation schemes to bring rural and poor women into market economy.
But, more ought to be done and achieved in terms of agricultural extension efforts to help women improve food production while allowing them to shift more of their labour to revenue generation and marketing of farm products

The rural women have not only been active in agricultural fields. They have ben actually employed in most arduous field operations like

- Sowing
- Harvesting
- Threshing
- Agro-processing

Traditionally, women in this sub-continent and especially in drier-belts have learnt the art of protecting the health of soil through **organic recycling**. They have also promoted crop security through the **maintenance of diversity** and **imposed genetic resistance**.
The government of India has time and again emphasized on uplift of rural infrastructure and the status of women in revenue generation- especially in agro-economy initiatives and food processing, which are cornerstones of overall growth of Indian economy.

Almost entire post-harvest and agro-processing activities are performed by women in many states such as Punjab, Maharashtra, Madhya Pradesh, Sikkim and west Bengal.
Operations like cleaning grading drying, storage are performed by women. Moreover, adoption of modern inputs along with cultural practices has enabled the agricultural productivity.
The introduction of tractors has been a boon, as a result combined harvesting has been introduced in Punjab, Haryana, Rajasthan, MP UP, Gujarat Maharashtra and Karnataka.

To strengthen women's participation in agriculture and allied activities, proper structural functional and institutional measures are being promoted by the central government to empower women, to build their abilities and to increase their access to input technology.
According to agri ministry- at least 21 techniques related to women were evaluated and over 2.5 lakh women were trained in agriculture related fields like animal husbandry and poultry

Cultivation of horticulture crops is labour intensive and as such they generate a lot of employment opportunities for the women population. Fruits and vegetables are not only used for domestic consumption but also are processed into various products like pickles preserves sauces, jam, jelly and squash etc.

Jal Sahiya

In Jharkhand, the state government has drawn out a scheme under which every village would comprise a water and sanitation committee where in compulsorily there will be a woman member from village.

Present status

On an average, an estimate shows that a woman spends 14 hours in and out of the house.
During harvesting, she spends about 16 hours a day. But when it comes to agro-economy decision in her fields, women have less importance.

There are also because women have less access to information about technology due to their limitation on educational status and relative isolation from public life. – often from modern tools of development like computer, and use of tractors etc.Some officials at the state levels assay that there are various occasions when suggestions of knowledgeable rural women are ignored or not taken seriously.

Thus there is a need to increase women's role in agriculture and evolve a system. The issue is more social than legislative or political.
Therefore policy changes needs to be tailor made based on local, requirements keeping in tune with local sentiments and customs and traditions.

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