

REALISING 'DIGITAL INDIA' THROUGH ITS DIFFERENT PILLARS

- Digital India is a flagship programme of the Government with a vision to **transform India into a digitally empowered society and knowledge economy**. The vision areas under this programme include 'Digital infrastructure as a Core Utility to Every Citizen', 'Governance and Service on Demand' and 'Digital Empowerment of Citizens'.
- Under this programme, the government aims to provide high speed internet connectivity across the length and breadth of the country. In addition, it also aims to establish and leverage the unique identity (Aadhar) as a mode to ensure **digital identity, financial inclusion, and easy access to the Common Services Centres (CSCs)**.
- Through, the **National e-Governance Plan 2005**, India had recognised e-Governance as a way forward for ensuring delivery of public services to the masses. The Digital India Programme took one step ahead and aspired to provide seamlessly integrated services across departments or jurisdictions by adopting a single window framework.

Different Pillars of Digital India**1. Broadband Highways**

- A comprehensive plan to establish the necessary infrastructure has been recognised and initiated under this pillar of the Digital India Programme.
- This pillar has three components - **Broadband for rural** (aims to connect 2,00,000 village panchayats), **Broadband for urban** (aims to utilise Virtual Network Operators for service delivery and communication infrastructure) and **National Information Infrastructure**.
- The National Information Infrastructure **aims to integrate India's Network and cloud infrastructure to facilitate high speed connectivity** as well as cloud platform for different government entities.
- It includes the include networks such as State-Wide Area Network, National Knowledge Network, National Optical Fibre Network and the MeghRaj Cloud.

2. Universal Access to Mobile Connectivity

- Under this pillar, the Ministry aims to connect over 50,000 villages which do not have mobile coverage, with an aim to bridge the digital divide.
- The **Department of Telecom** has been assigned as the **Nodal Agency** for this project.

3. Public Internet Access Programme

- It aims to establish the infrastructure mechanisms for enabling access to public internet for the common people. The programme focused mainly two components - **CSCs and transforming Post Offices as multi-service centres**.
- CSC 2.0 project aims to establish a self-sustaining network of 2.5 lakh CSC centres at gram panchayat level.

4. e-Governance - Reforming government through Technology

- This pillar has different focus areas such as form simplification and form reduction, online applications and tracking, online repositories and integration of services and platforms.
- It also aims to transform the workflow inside the government departments to enable efficient government processes and also to allow visibility of these processes to citizens.

5. e-Kranti, Electronic delivery of Services

- Under this pillar, the Digital India programme has identified **44 mission mode programs** which have been grouped under Central, State and Integrated projects.

- The major focus areas include banking, income tax, transport, commercial taxes, financial inclusion and so on.

6. Information for All

- This pillar aims to ensure transparency and availability of reliable data generated by the line ministries for use, reuse and redistribution for the people of India.
- Under this pillar, government aims to pro-actively leverage the social media and web-based platforms to inform and interact with citizens.
- The **Mygov** platform is a significant step towards ensuring governance and promoting government citizen interactions.

7. Electronics Manufacturing

- Due to the high capital and operational expenditure, electronics manufacturing in India has not taken off. The Ministry has been trying to change this scenario by bringing policy interventions to draw global interest for electronics manufacturing in India.
- The recent policies including **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS)**, **Production Linked Incentive Scheme (PLI)** for Large Scale Electronics Manufacturing and the **Modified Special Incentive Package Scheme (M - SIPS)** have been monumental in strengthening the electronics in India.

8. IT for Jobs

- This pillar focuses on skill development of the Indian youth in rural and urban areas for making them skilled for the IT/ITeS sector. Setting up of BPOs and providing IT trainings has been the biggest focus of this pillar under the Digital India programme.

9. Early Harvest Programmes

- This pillar consists of a group of different short-term projects which have immediate effect on the Indian digital ecosystem.
- It includes IT platform for mass messaging, crowd Sourcing of eGreetings, biometric attendance in the government offices, WI-FI in all universities etc.

Challenges

1. Technical Challenges

- Challenges such as interoperability of solutions, privacy, security and multi service interaction have been consistently faced by the implementing agencies. Digital illiteracy is another major challenge which has prevented the effective utilisation of the projects.

2. Organisational Challenges

- With several central and state entities in play, ensuring coordination and communication is a key.
- Lack of highly skilled individuals, huge population, presence of different languages and the distributed control of subject between the state and the Centre, are recognised as the major challenges.

3. Economic Challenges

- The scale of the Digital India programme warrants huge budget outlay.

Way Forward

1. **Improving the Regulatory Framework** to ensure widespread adoption of digital services
2. **Effective Implementation of Projects** by focusing on the skill enhancement of its workforce and the futuristic planning of the projects.

3. **Optimisation of Resources** by developing output-outcome based monitoring framework for individual project
4. **Bridging the Digital Divide**
5. **Driving Inclusive Participation in Projects** - Inclusive efforts with participation of industry and academia are crucial. In addition, Public Private Partnership models may also be explored for Sustainable development of digital infrastructure.

TOWARDS “SARVE SANTU NIRAMAYA”- INDIA’S EHEALTH REVOLUTION

The use of technology to deliver health sector services, solutions, interventions and services that ride on digital platforms can all be clubbed under eHealth.

10 e’s in eHealth
Efficiency, Enhancing quality, Evidence-based, empowerment, Encouragement, Education, Enabling, Extending of scope, Ethics, and Equity

National Digital Health Mission (NDHM)

- NDHM was announced during the 73rd Independence Day celebrations, on 15th August, 2020.
- Under this scheme, Health ID will be given to every Indian. This health account will contain details of every test, every disease, the doctors visited, etc. This information will be very useful as it is **portable and easily accessible** even if the patient shifts to new place and visits a new doctor.
- The National Digital Health Blueprint envisages achievement of the following objectives:
 - To establish state-of-the-art digital health systems
 - To establish National and Regional Registries
 - To enforce adoption of open standards
 - To create a system of Personal Health Records
 - To promote development of enterprise-class health application systems
 - To ensure National Portability
 - To promote the use of Clinical Decision Support Systems

Other eHealth Initiatives

- A useful platform of the Health Ministry is the **National Health Portal-NHP**. It provides information to citizens and stakeholders in different languages.
- The **e-Hospital@NIC** is a workflow-based ICT solution for hospitals specifically meant for the hospitals in the Government Sector.
- In order to improve ease of services for citizens, the **Online Registration System** was launched in July 2015.
- **‘Mera Aspatal’** is a Health Ministry initiative to capture patient feedback for the services received at the hospital. The patient can submit the feedback in seven different languages on mobile app and web portal; for the hospitals visited in last 7 days.
- To provide a “single window” for multiple stakeholders (Pharma Industry, Regulators, Citizens) involved in the processes of Central Drugs Standards Control Organisation, **“SUGAM”** has been created by the Ministry. It enables online submission of applications, their tracking, processing & grant of approvals online mainly for drugs, clinical trials, ethics committee etc.

- **Health Management Information System (HMIS)** - It is a web based portal for monitoring the programmes under NHM that includes monthly service delivery data reporting from public health facilities to improve program monitoring and management.
- **Mother and Child Tracking System (MCTS)/ Reproductive Child Health (RCH) Application** - It is an individual-based tracking system to facilitate timely delivery of antenatal and postnatal care services and immunization to children with an objective of improving IMR, MMR and other health parameters.
- **Kilkari** - It delivers free, weekly, time-appropriate 72 audio messages about pregnancy, child birth and child care delivery to families' mobile phones.
- **TB Patient Monitoring System "Nikshay"**- This tracks individual for treatment adherence.
- **Tobacco Cessation Programme**- It is a mobile-based interventional initiative for counselling and helping people to quit tobacco.
- **mDiabetes Programme**- for prevention and care of diabetes.
- **Drugs and Vaccines Distribution Management System (DVDMS) ('eAushidhi')** - It deals with purchase, inventory management and distribution of various drugs and surgical items to various District Drug Warehouses by automating the workflow of procurement, supply chain, quality control and finance department in State/UT level.
- **e-Rakt Kosh** – A comprehensive, efficient and total quality management approach with the help of online systems which is being rolled out for all the licensed blood banks in public and private health facilities in States/UTs.

Mobile Applications

1. Vaccine Tracker for Indradhanush/ Immunisation services
2. India Fights Dengue
3. NHP Swasth Bharat
4. NHP Directory Services Mobile App - provides information related to Hospitals across India
5. No More Tension Mobile App - provides information on stress management related aspect
6. Pradhan Mantri Surakshit Matritva Abhiyan Mobile App - for reporting pregnancy care related information from across the states.

e-Sanjeevani: Transforming the Medical Landscape

- A digital platform for provisioning of health services, e-Sanjeevani has silently solved three key obstacles:
 - Non-availability of qualified and efficient Doctors
 - High burden on healthcare care facilities due to non-availability of sufficient services
 - Lack of Health Record creation at Primary and Secondary level & lack of interoperability
- It empowers patients and doctors by enabling real time video-audio based tele consultations followed by generation of e-Prescription for each teleconsultation.
- The e-Sanjeevani platform has two varied facility:
 - e-Sanjeevani which is meant for doctor — to - doctor teleconsultations
 - e-Sanjeevani OPD which is meant for patient - to - doctor teleconsultations
- e-Sanjeevani for doctor — to - doctor teleconsultations was launched by Ministry of Health and Family Welfare in November 2019 and it is to be implemented at Health and Wellness Centres (HWCs) under Ayushman Bharat Scheme by December 2022.

- The patient — to doctor e-Sanjeevani OPD was rolled out in April 2020 during the first lockdown when the OPDs across the country were shutdown. It enables access to OPD services by the patients within their domestic confines.

eVIN (Electronic Vaccine Intelligence Network)

- It is aimed at strengthening immunisation supply chain systems in India implemented under National Health Mission.
- It aims to provide real-time information on vaccine stocks and flows, and storage temperatures across all cold chain points in the country.

STURDY PROGRESS IN RURAL E-GOVERNANCE

- Since a large part of India's population lives in villages, it is crucial that our e-Governance model makes sure that it is accessible to the rural masses in the country.
- e-Governance is the mechanism for providing and managing government services via electronic means and is expected to help in ensuring a SMART (Simple, Moral, Accountable, Responsible and Transparent) government.

Digital India and e-Governance

- e-Governance plays a prominent part in the ambitious Digital India initiative and one of its nine pillars is called '**government process re-engineering**' which is indicative of Government's resolve to not just use electronic delivery systems but carry out some fundamental changes in the way government services and processes work.
- The guiding principles for Government through technology are:
 - Form Simplification and Field Reduction
 - Online Applications and Tracking
 - Online Repositories
 - Integration of Services and Platforms
 - Information in Electronic Forms

National e-Governance Plan

The Government had put together the National e-Governance Plan (NeGP) which articulates a comprehensive, nationwide vision for institutionalised approach towards successful implementation of e-Governance in the country

Some e-Governance Projects

- **E-Panchayats** - It is a Mission Mode Project in which 2,50,000 Panchayati Raj Institutions were identified to deliver e-Governance services to rural populations.
- **Bhoomi** - A Karnataka government initiative, it has been instrumental in digitisation of land records.
- **E-Choupal** - Launched by ITC limited (a private sector project) to address various requirements of farmers, including selling their produce directly to the buyers, and ruling out the role of middlemen in the process.
- **Gyandoot** - A project launched by Madhya Pradesh government. It works through soochnalayas set up in Dhar district of the state.

Limitations of Rural India

- The biggest limitation is related with **infrastructure**. The number of smartphones is still far from covering the entire population.
- **Literacy levels** vary in urban and rural areas. IT awareness and IT literacy is another important aspect. It is low even among those who are literate.
- **Language diversity** is another challenge. Though government is working to make these systems available in local languages as well but the process will take time due to the large number of languages we have.

Common Service Centres

- The CSC is a strategic cornerstone of the National e-Governance Plan (NeGP).
- It provides high quality and cost-effective video, voice and data content and services, in the areas of e-Governance, education, health, telemedicine, entertainment etc.

Effectiveness of the ICTs

- Once Internet or communication infrastructure is laid out, it can be used for various objectives including communication, e-education, e-commerce and e-Governance. There is **no need to separately carry out infrastructure development** just for the purpose of government service delivery. Hence it saves valuable government resources as well as the time taken in development of infrastructure.
- ICT mechanism helps governments to reach out to the remotest parts of the country which may otherwise be difficult to reach.
- ICTs contribute in making sure **government services are available in a transparent and accountable** manner. This is an **inclusive, bidirectional system** where rural population has liberty to reach out to the government with their complaints and grievances.
- It contributes in **eradicating corruption** as there is no middleman involved in the process of deliver and receipt of services. It also helps in **reducing red tapes and bureaucratic hurdles, and improving efficiency**.

Conclusion

- e-Governance not only makes access to government services **convenient and on-demand** to a large extent but they also **save valuable financial resources** on both sides of the system.
- For rural population, this is an important aspect because people need to travel large distances to submit or get government documents issued.

E-LEARNING: ACCESS AND SCOPE OF DIGITAL EDUCATION

Department of School Education and Literacy, MHRD (recently as Ministry of Education) has been encouraging and implementing diverse remote learning initiatives through innovative use of digital technology and virtual learning.

Digital Education: Concept and Pedagogy

- **Online Learning:** It is the learning by accessing available online resources.
- **Web-based Learning:** Web-based learning refers to the process and practice of learning by using web browsers.

- **E-learning:** It is the process of using electronic technologies for teaching-learning processes in which the learning activities take place either entirely or partially online. They can be conducted by means of electronic media without the use of the Internet.
- **Blended Learning:** Blended learning generally combines virtual learning with traditional classroom learning.
- **Distance Learning:** It is the process of learning from a distance in which the participants are physically separated. Presently, with the development of digital technologies, distance learning is increasingly associated with online learning and use of virtual classrooms for live online teaching.

Steps

DIKSHA-Digital Infrastructure for Knowledge Sharing Digital Infrastructure for Knowledge Sharing

- DIKSHA was launched in 2017 as a national platform for school education to address the challenge of remote learning especially in rural areas.
- It is available for all the learners of grades 1 to 12 and it can be accessed through a web-portal and mobile application.
- As per the **India Report Digital Education-2020**, DIKSHA provides access to a large number of curriculum linked e-content through several use cases and solutions such as QR coded Energised Textbooks (ETBs), courses for teachers, quizzes and others.

ePathshala

- ePathshala has been a joint initiative of **MHRD and National Council of Educational Research and Training (NCERT)** for the purpose of showcasing and disseminating all educational e-resources including textbooks, audio-video resources, periodicals and a variety of other digital resources.
- The ePathshala Mobile app is designed for bridging the digital divide of rural India by facilitating ease of access to eBooks.

Swayam Prabha Channels

- This is the access to digital education through TV channels. Swayam Prabha DTH Channels support and reach those who do not have access to the internet.
- Through 32 channels earmarked for school education and higher education separately, high quality educational programmes are telecasted by the MHRD and the same are open for people of rural India for accessing remote digital learning.

NROER-National Repository of Open Educational Resources

- It is a collaborative platform for sharing of open educational resources. It was initiated by the Department of School Education and Literacy and managed by the Central Institute of Educational Technology (NCERT).
- As a national repository, NROER hosts large number educational resources in many subjects and in different Indian languages for Primary, Secondary and Senior Secondary classes. Apart from this, all NCERT books are available in Flip book format.

ICT Scheme under Samagra Shiksha

- The scheme of Samagra Shiksha has integrated the efforts of Computer Aided Learning of Sarva Shiksha Abhiyan with the ICT interventions of Rashtriya Madhyamik Shiksha Abhiyan (RMSA) by enabling the learners towards creative participation and innovative digitalisation in order to improve access, quality and efficiency in school education.

Shaala Darpan

- Shaala Darpan is an e-Governance platform for all Kendriya Vidyalayas in the country including rural areas.
- It aims at improving quality of learning, efficiency of school administration, governance of schools and service delivery to key stakeholders.

Shaala Siddhi

- The National Programme on School Standards and Evaluation (NPSSE) is known as Shaala Siddhi. It is a comprehensive instrument for school evaluation leading to school improvement developed by the National University of Educational Planning and Administration.
- Shaala Siddhi enables the schools to evaluate their performance and thereby bring improvement.

E-Granthalaya

- E-Granthalaya is an **Integrated Library Management Software** developed by National Informatics Centre, Department of Electronics and Information Technology.
- The application is useful for automation of in-house activities of libraries and to provide various online member services.

Digital Saksharta Abhiyaan (DISHA)

- The Digital Saksharta Abhiyan or National Digital Literacy Mission (NDLM) Scheme has been formulated to impart IT training to people including Anganwadi workers, ASHA workers and authorised ration dealers.
- The initiative aims at training non-IT literate citizens to become IT literate and encourage their effective participation in the developmental process.

Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA)

- PMGDISHA scheme aims at empowering the citizens of India particularly rural India by training them to access and accelerate the Digital India initiatives by operating computers or digital devices in order to send/receive emails, sms, browse internet, etc. and thereby actively participate in the nation building process.

Other Initiatives at National Level

- Shiksha Vani, Knowledge Management System (KMS), Learning Management System (LMS), National Knowledge Network (NKN), Online Labs (OLABS), SMS-Based Mid-Day Meal Monitoring Scheme, Sugamaya Pustakalaya etc.

Conclusion

- India is moving towards a global knowledge super power in which educational technology, digital initiatives and virtual classrooms play prominent roles especially for the people of rural and remote India.
- Hence, digital education and virtual learning need to be the essential prerequisites of most of the rural development programmes.

PRECISION AGRICULTURE AND LOT-BASED SOLUTIONS

- India is primarily a rural-based economy, where over 60 percent of population still relies on agricultural and rural systems, as the primary source of income for their livelihoods.

- The Government has an envisioned target of achieving US\$ 5.0 trillion economy by 2024 and US\$ 7.0 trillion by 2030 from the existing US\$2.6 trillion (FY2020-21).
- These envisioned targets are possible and feasible by **adopting disruptive approaches to transform the agricultural and rural systems** in an integrated manner. One such mechanism for rural empowerment is extensive usage of '**Precision Agriculture**' (PA) and '**Internet of Things**' (IoT) **based solutions** in variety of farming systems in India.

The Need for 3rd Tech-Revolution in Agriculture

- The global economy is entering the **3rd modern revolution in agricultural and rural development systems**.
- The '**1st Agricultural Revolution**' was focused on mechanisation of agriculture (1900-1940s), where a farmer produced-and-fed an average 26 people.
- The '**2nd Agricultural Revolution**' was directed towards Green Revolution in Agriculture (1960-1990s), where a farmer could feed about 155 people by adoption of improved seeds, evolved-farming systems, agro-management technologies.
- The '**3 Agricultural Revolution**' (1990s onwards) has to dive deep and with a focus on adoption of hi-end technology, cloud based solutions, data-driven decision making in agricultural/farm management systems, usage of analytical tools for post-harvest and marketing of agricultural produce, etc. Then only a farmer can feed about 256 people.

Precision Agriculture (PA) and its Significance

- PA is also referred alternatively as 'precision farming', or 'site-specific crop management'.
- The PA describes the "process of technology enabled and integrated approach to agricultural crop management system that comprises the observation, measurement, and analysis of the needs of individual fields of farmers and crops in the regions, so that the productivity and farmers' income are significantly enhanced".

Benefits of Adopting Precision Agriculture

- (a) Adopting the improved set of agricultural production practices and choice of crops, based on suitability of localised lands and climate;
- (b) Optimising the input-resources like water, fertilisers, plant-protection measures against pests-diseases;
- (c) Helping to minimise/avoid the wastages, by technological interventions; (d) managing the water and soil nutrients for agriculture effectively,
- (d) Eliminating the risk and volatility in crop-production-systems, and;
- (e) Increasing the farmers-income through tech- driven customised solutions.

The Indian Scenario

- The **IoT is one of the most promising techniques** to achieve precision agriculture, which is expected to increase agricultural yields significantly. The IoT in agriculture is an emerging domain, where the farmers are enabled to take profitable decisions based on the real-time data and during the entire cropping cycle of agricultural production.
- This IoT-based solution involves enhancing automation and reducing the manual farm- management practices so that farmers leverage the advantages of IoT-technologies.

- As an illustration; a farmer is given a designed control system with sensors via smartphone application and a web (i.e., hardware, web app, mobile app) to optimise the irrigation when is required and avoids wastage of water through wireless sensor networks.
- Further, prediction models are developed/used by taking temperature, humidity and moisture levels of the soil, for each crop on the farm, and water is irrigated only when required.

Challenges in Adopting Precision Agriculture

- The **information technology infrastructure systems** and service facilities oriented to agricultural sector are inadequate,
- The agriculture in India primarily consists of **small and marginal land holdings**. Most of these small/marginal farmers are **not fully-aware of the benefits of PA**.
- Most of the Indian farmers are **not familiar in using of technology-based** agricultural systems and app-based decision-making-systems in farm management practices.
- **Socio-economic factors** in villages, where Indian farmers are generally reluctant to try something new like PA/tech-driven-agriculture.
- The banking and financial institutional systems have **preferential bias in financing/ funding the industrial/service sector**, when compared to lending to the agricultural sector.

Way Forward

- There is an urgent need to provide policy push. The strategic policy formulation and effective implementation should be robust, at both central and state government levels.
- Indian agricultural-system should focus on exploring/ harnessing the export markets which will give the higher returns to farmers and increased foreign exchange reserves to the central government.
- It requires more of a mind-set shift and cultural transformation in both bottom-up approach (adoption process by farming community) and top-down approach.
- The Public-Private Partnership (PPP) Model is one of the best way forward to foster ownership and inclusive growth among all the stakeholders, so that PA/IoT-technologies will become comprehensive, complete and holistic in their approaches.

Conclusion:

The precision agriculture is not only the need of the hour but also has the tremendous potential in increasing agricultural farm-incomes, facilitating empowerment of farming community and creating large scale impact in rural India.

PUBLIC PRIVATE PARTNERSHIPS FOR DIGITALISATION IN RURAL INDIA

- It is expected that in the next ten years, there will be dramatic changes in the agri-food system spearheaded by advanced digital technologies like Blockchain, Internet of Things (IoT), Artificial Intelligence (AI), Immerse Reality, etc.
- Other factors include changing consumer preferences and demands, the influence of e-commerce on global agri-food trade, climate changes etc.
- The rural segment could broadly benefit from the raising farmers' incomes and boosting their income security. This can be aided by **three digital themes**: — Digital financing and insurance payouts enabled by consolidating information and facilitating credit-scoring and yield forecasting models using satellite and weather data.

Need for Digitalisation in Rural India

- India will continue to remain a young nation, with a median age of 31 by 2030 while the rural belt would continue to support a large part of this population. The fact remains that the rural economy contributes about 46 percent to the national income, despite recent increases in the country's urban footprints.
- So far, the rural economy had been an informal and cash-oriented with most of the rural working population engaged in the “**Earn and Pay**” segment. But there is a pronounced diversification and a perceivable shift.
- With the rural economy getting more diversified, the non- agricultural sector contributes to about two-thirds of household incomes with the result that those living in rural India are no longer as isolated from urban centres, mainly riding on digitisation owing to increasing internet access.

Government Initiatives

Kisan Suvidha

- It is an omnibus mobile app developed to help farmers get relevant information instantly.
- The app provides information on various details such as weather, market prices, seeds etc.

Farmer Portal

- The portal is envisaged to make available relevant information and services to the farming community and private sector to supplement the existing delivery channels provided for by the department.
- It is an endeavour in this direction to create **one-stop- shop for meeting all informational needs** relating to Agriculture, Animal Husbandry and Fisheries sectors production, sale/storage of an Indian farmer.

mKisan

- mKisan **SMS Portal** has been conceptualised to give a quantum leap in coverage of farmers and geographical area in a timely, specific, holistic and need based knowledge dissemination among the farmers by leveraging the power of mobile telephony in such a way that all sectors use this platform to not only reach out to the farmers but also to address their concerns and queries.

NREGA Soft

- NREGA soft provides information to citizen in compliance with the RTI Act. It makes available all the documents like Muster Rolls, registration application register, etc. which are hidden from public otherwise.

Pradhan Mantri Jan-Dhan Yojana (PMJDY)

- The plan envisages universal access to banking facilities at least one basic banking account in every household, financial literacy, access to credit, insurance and pension facility.

BHIM (Bharat Interface for Money)

- BHIM is an app that makes payment transactions simple, easy and quick using Unified Payments Interface (UPI).

Crop Insurance Mobile App

- Crop insurance mobile app can be used to calculate the insurance premium for notified crops based on area, coverage amount and loan amount in case of loanee farmer.

e-Panchayat

- e-Panchayat is an e-Governance initiative for the rural sector providing comprehensive software solution attempting automation of Gram Panchayat functions.
- It is a platform for panchayat representatives to connect with rest of the world, which aims to bring out the local voices by empowering the local communities to showcase and share local social, cultural and economic practices, stories and challenges.

E-NAM

- National Agriculture Market (NAM) is a pan- India electronic trading portal which networks the existing APMC (Agriculture Produce Marketing Committee) 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.

Pusa Krishi

- The app helps the farmers to find easy solutions to problems in their farm fields and get information about weather and accordingly take measures to save crops.
- It also offers information related to new varieties of crops developed by ICAR.

Soil Health Card

- It aims at promoting Integrated Nutrient Management (INM) through judicious use of chemical fertilisers including secondary and micro nutrients in conjunction with organic manures and bio-fertilisers for improving soil health and its productivity.

Deendayal Upadhyaya Gram Jyoti Yojana

- One of the flagship programmes of the Power Ministry, it is designed to provide continuous Power supply to the entire rural India.

GARV Grameen Vidyutikaran Mobile App

- It provides real-time updated data of ongoing electrification process to all stakeholders and provide information about govt. schemes and electrification data.

PULSES SCENARIO IN INDIA

- Pulses are a crucial element in the food basket of predominantly vegetarian population in our country to ensure nutritional security.
- These are the relatively most inexpensive source of proteins and bestow immense positive externalities to the environment enriching soil fertility and being a water efficient crop.
- Green revolution has significantly improved productivity and production of many crops. However, this increase has been comparatively lower in case of pulses.

Production

- Production of pulses reached record levels of 231.3 LMT and 254.2 LMT during 2016-17 and 2017-18, respectively. However, **fluctuation in production levels is still witnessed**.
- This may have contributed to **adverse price movements** implying not only uncertainty in expected and actual remunerations to the farmer but also widely varying retail prices for the consumer.
- The production of pulses in 1950-51 was 84.1 lakh MT with an average yield of 441 kg/ hectare. It increased to 192.7 lakh MT with the **average yield almost doubling** (764 kg/hectare) in 2013-14.

- However, for the aforesaid period, **rice production has increased five-fold**, with nearly **four-fold increase in yield**. Wheat production has **increased 15-fold** with four and a half times' enhancement in yield.

While MSP is one of the critical tools for promoting production and ensuring sustained availability, focus on productivity enhancement and strengthening other non-price interventions appears to be necessary.

As far as **contribution of pulses to inflation** is concerned, pulses account for 2.38% of overall CPI basket.

- Differences in absolute levels of production between States exist.
- There is scope for bridging the gap with respect to variability in yield which would also enhance absolute production levels.
- Best practices of growers should be shared across the country on a periodical and user-friendly basis to increase yields through indigenous methods.
- A '**Green Revolution**' for pulses is needed to regain ground. This is more so given the fact that **global yields are about 1.5 times that of India**, whereas **productivity in Myanmar, China and the US is about 2-3 times more than that of India**.

National Food Security Mission (NFSM)

- NFSM was launched in 2007-08 to increase the production of rice, wheat and pulses through area expansion and productivity enhancement; restoring soil fertility and productivity; creating employment opportunities; and enhancing farm level economy.
- **NFSM-Pulses is being implemented** in more than 600 districts of the country. It is one of the major intervention by the Government to improve yield of pulses
- To reap benefits in full measure, participation of the major pulse-producing States/UTs needs to be robust with quantitative targets especially for States with significant land under rice fallows.
- Further, a greater push should also be given towards diversification of produce. Also, procurement of rice, wheat and sugarcane at MSP/Fair and Remunerative Prices (FRP) **may be rationalized** keeping in view stability in their prices, self-sufficiency in production, ample buffer stocks.
- This is essential to enable shift towards less-water intensive crops and aligning cropping pattern towards nutrition rich diets which is in line with the Sustainable Development Goals (SDGs) and ensuring their availability at affordable prices.

Buffer of Stock Of Pulses

- Procurement of pulses at the MSP is undertaken in the Price Support Scheme (PSS) under the Umbrella Scheme of Pradhan Mantri Annadata Aay Sanrakshan Abhiyan (PM-AASHA).
- The rationale is to provide a guaranteed price and assured market (i.e., procurement by Government agencies) to protect growers from adverse price fluctuations.
- Further, **Price Stabilization Fund** (PSF) scheme implemented by Department of Consumer Affairs is largely utilised towards creation and maintenance of buffer stock of pulses.
- These include **5 major pulses** viz., Tur, Urad, Moong, Chana and Masur. Domestic procurement towards this helped to offer remunerative prices to farmers in the wake of record bumper production of pulses.

- Regulated release from Government stock of pulses has boosted availability in lean periods and helped moderate prices benefitting consumers. Also, it has a role in deterring hoarding and speculation activities.

Way Forward

- **The trade policy** may be aligned to suit adequate domestic availability. Key emphasis should be laid down in stabilising domestic production levels in a sustainable manner with a balance between price and non-price interventions ensuring adequate incentives to the farmer.
- Stable prices would also enable creation/expansion of export markets and processing supplies suited to consumer preferences which would create assured remunerative markets for growers by boosting the value chain.
- **Scientific storage and its decentralisation** are key infrastructure to ensure smooth availability round the year and stability in prices.