ICT

Dr. Ravi P. Agrahari

(Faculty of KSG)

Topics of Discussion

1. E-Governance
2. National e-governance Programme

State Data Centre

e-district

Mobile governance

Rapid application initiative

E-Bharat

Meghraj

Dial governance

e-Taal

National Optical fiber Network

Pragati, m-krishi, Adhar, Digital locker,

JAM – Trinity

E-Learning : Swayam , Saransh

E-governance: Concept and significance

Since **1990s, constant efforts are being made to improve the systems of public service delivery** in order to reinvent governments worldwide.

As per Ministry of Information and Technology, the role of e-governance goes far beyond mere computerization of stand-alone back office operation.

It leads to fundamental changes in government operations; and new set of responsibilities for the legislature, executive, judiciary and citizens.

National e-Governance Plan

The National e-Governance Plan (NeGP), is a **multi-stakeholder program, primarily focusing on making critical public services available, thereby promoting rural entrepreneurship**.

Various ministries and departments has been implemented 44 Mission Mode Projects (MMPs) under NeGP.

NeGP is aimed to transform traditional processes and service delivery mechanisms. **It contributes to citizen-centric environment to make easier, effective and transparent interaction with the Government**.

So far, **progress the projects being implemented by DeitY (Department of Electronics and Information Technology) under NeGP.**

A mission mode project (MMP) is an individual project within the National e-Governance Plan (NeGP) that **focuses on one aspect of electronic governance, such as banking, land records or commercial taxes etc.**

Within **NeGP 2.0**, "mission mode" implies that projects have clearly defined objectives, scopes, and **implementation timelines and milestones**, as well as measurable outcomes and service levels.

Status of Mission Mode Projects

NeGP comprises of **44 Mission Mode Projects** encompassing **15 central MMPs, 17 state MMPs and 12 integrated MMPs**.

MMPs are owned and spearheaded by various line ministries. State Governments are responsible for implementing State MMPs, under the overall guidance of respective Line Ministries in cases where Central Assistance is also required.

MeitY acts as the facilitator and catalyst for the implementation of NeGP and provides technical assistance to various Ministries / Departments and State Governments.

Dr. Ravi P. Agrahari

1. State Data Centers (SDCs): It is **proposed to establish Data centers in all the states/ union territories to host state level e-Governance applications/ data via common and secure IT infrastructure**.

This will enable seamless delivery of Government to Government (G2G), Government to Citizen (G2C) and Government to Business (G2B) services duly **supported by State Wide Area Network (SWAN) and Common Service Centers (CSC) which are established at the village level.**

State-wide Area Networks (SWANs): SWAN acts as **converged backbone network for data, voice and video communications throughout a state/ union territory**. It is expected to handle the information communication requirements of all the departments.

Common Services Centers (CSCs): The CSCs are **ICT enabled kiosks** with **broadband connectivity to enable various Government, private and social services at the doorstep of the citizen**. **Government aims to create 1,00,000 CSCs across 600,000 rural and remote locations of India.**

Dr. Ravi P. Agrahari

2. e-District: The implementation of the **e-District project approved in 2011**. The e-District project was conceptualized to **improve Government-to-Consumer** or G2C interaction. This, as a result will **enhance the efficiencies of the various Departments at the district-level to enable seamless service delivery to the citizen**.
The **Common Services Centre's (CSCs) will take care of establishment of the village-level front-ends** for delivery of services.

3. Mobile Governance: In 2012, the framework for Mobile governance had been **developed and notified by the DeitY.**
The Mobile Services Delivery Gateway (MSDG) was operationalised in 2011 and contributes to the core infrastructure that **enables the availability of public services through mobile devices**. A mobile Applications Store has also been created and made operational in 2012.

4. E-Bharat: The **World Bank provided a loan to the GOI towards programme management and financial support for the National e-Governance Plan (NeGP)**. The project is envisaged to support NeGP's countrywide plans of **increasing the availability of online services for citizens** in their locality. It is aimed to improve the quality of basic governance in areas that concern the common man.

5. MeghRaj: **DeitY has initiated a project called 'MeghRaj'** with a view to harness the **benefits of cloud technology**. This project **aims to create the Government of India cloud (Gl Cloud) based computing environment at the national level.**

This initiative primarily focuses to evolve a Strategy and implement various components **including governance mechanism**, thereby ensuring proliferation of Cloud in government.

Meghraj's role will be a common receptacle of cloud-based infrastructure resources and applications available on demand.

6. Dial. Gov.: The dial.gov.in **portal was launched in December 2012.** Dial. Gov. has been implemented as a common man's interface for **providing comprehensive information on eligibility** of various **benefits under different social sector schemes those are operational across the country**.

The information is being provided through **web-based portal, Call Centre and Interactive Voice Response System (IVRS),** Dial. Gov. will eventually encompass **all welfare schemes across the central and State departments** and provide the related information in a convenient manner.

7**. e-Taal**: **Electronic Transactions Aggregation and Analysis Layer (e-Taal)** is a **web portal developed by NIC (National Informatics Centre) for aggregation and analysis of e-transaction statistics of central and state level e-governance projects** which also includes **Mission Mode Projects**.

8. National Optical Fibre Network (NOFN)

The National Optical Fibre Network (NOFN) is approved to be established as per Government of India with **primary objective to provide connectivity to all 2,50,000 Panchayats in the country.**

The **vision of NOFN is to provide 100 Mbps broadband connectivity to all Panchayats**.

Further applications involve, to **provide B2B Services in a non-discriminatory manner; to facilitate proliferation of G2C, B2C** and P3P Broadband services in rural areas and to act as catalysts for increasing broadband penetration and usage.

PRAGATI (Pro-Active Governance and Timely Implementation):

· It is a **multi-purpose and multi-modal governance platform**.

· A unique **integrating and interactive platform,** PRAGATI is aimed to address common man's grievances, and at the same time, **monitor and review important programs and projects of the GOI and projects flagged by State Governments.**

The PRAGATI platform uniquely bundles three latest technologies:

1. Digital data management,
2. Video-conferencing and
3. Geo-spatial technology.

· It is an **innovative arm of e-governance and good governance.**

· **It provides a common platform to the Secretaries of Government of India and the Chief Secretaries of the States and hence provides a unique combination towards cooperative federalism**.

· The Prime Minister can discuss the issues with the concerned Central and State officials with entire details and latest visuals of the ground level situation.

Key features of the PRAGATI application are:

1. The PMO, Union Government Secretaries, and Chief Secretaries of the States, constitute PRAGATI application and hence it's a three-tier system.

2. To interact with the Government of India Secretaries and Chief Secretaries, the Prime Minister will hold a monthly program once in every month on Fourth Wednesday at 3.30 PM.

This program (to be known as **PRAGATI Day**) is held through Video-conferencing enabled by data and geo-informatics visuals

m-Krishi Mobile App for Aquaculture Operations

- This is a **pilot project launched under the digital India program on experimental basis in Gujarat and will be extended all across India.**

- **A huge amount of data is to be captured; analyzed and dynamic decisions** are to be made for the complex sets of activities involved in Aquaculture of shrimp.

- Currently the records are manually maintained by the farmers on a sheet of paper, and hence lack in terms of growth and trend of the aquaculture operations.

.

It is an **Android mobile application**, which has been **developed by Hence, MPEDA (Marine Products Export Development Authority) and TCS Innovation Lab, Mumbai (part of its CSR initiative),** developed m-Krishi Mobile App which is an android mobile application.

· It serves as an **easy tool for book keeping, advisory services and weather information**.

· To access and get benefited from this app, the **farmer will require an android mobile handset (post 2013 models) with a data/GPRS connection (2G, 3G or Wi-Fi).**

Aadhaar

· A revolutionary step in terms of **digitalization in terms of proof of identity came in the form of Aadhaar**. It is a **12-digit individual identification number** issued by the **Unique Identification Authority of India** on behalf of the Government of India.

· This number will serve as a proof of identity and address, anywhere in India. **Aadhaar letter can be received via India Post, in form of e-Aadhaar downloaded from UIDAI website, both being equally valid.**

· No matter how what's your age or gender, you can enroll for Aadhaar, being a resident of India and satisfying the verification process laid down by the UIDAI.

· Single enrollment is required and that's free of cost.

· **Each Aadhaar number is unique to an individual with lifelong validity**. In due course of time, it is expected that via Aadhaar number you can access services like banking, mobile phone connections and other Govt. and Non-Govt services.

Dr. Ravi P. Agrahari

Digital Locker

The **Government of India** launched "**digital locker**" services **on February 2015** to provide a **secure dedicated personal electronic space for storing the documents** like PAN card, passport, mark sheets and degree certificates. It is linked to the Aadhar number.

This locker maybe linked to one's Aadhaar number. **10MB of space is offered which can be further extended to 1GB space for all the documents free of cost**. Website will store digital information, in place of physical assets.

On September 7, 2016, Union Road Transport Minister Nitin Gadkari, launched the integration of DigiLocker with the Driving License and Vehicle Registration system of the Ministry of Road Transport and Highways.

Central Board of Secondary Education (CBSE) has issued mark sheets to class XII students in digital format along with hard copies for the students in their digital lockers.

It is one of the key initiatives under the Digital India Programme. **MahaOnline Ltd, the joint venture between Maharashtra government and Tata Consultancy Services (TCS)** developed and maintains this website.

Dig locker minimizes the usage of physical documents, thereby enabling sharing of e-documents across agencies. It will reduce the administrative overhead of government departments and agencies created due to paper work.

On top of this, it will make it easy for the residents to receive services by saving time and effort since the documents will now be available anytime, anywhere and can be shared electronically.

Dr. Ravi P. Agrahari

JAM Trinity

- **JAM stands for three things-** The Jan Dhan Yojana, the Aadhaar initiative of UIDAI and Mobile number. These three things are now often called the Trinity of reforms in India.

- The JAM Trinity holds the key to implement large scale, technology enabled real time **direct benefit transfer (DBT's)** to improve the economic condition of the India's poor.

- First variety of JAM PAHAL scheme of transferring LPG subsidies via DBT reduced leakages by 24%. Though riddled with challenges of beneficiary identification, distributor-opposition and beneficiary financial inclusion, JAM trinity is expected to reduce leakages and provide more financial space to the government.

E-learning (EDUCATION AND INTERNET TECHNOLOGY)

· The Internet and its www have captured the imagination and interests of millions around the world leading to use of terms like web-based learning, online learning, etc.

SWAYAM

Study Webs of Active –Learning for Young Aspiring Minds programme **of Ministry of Human Resource Development, Government of India**. **Professors of centrally funded institutions like** IITs**,** IIMs**, central universities will offer online courses to citizens of** India.

SWAYAM is an **instrument for self-actualisation** providing opportunities for a life-long learning. **Here learner can choose from hundreds of courses, that is taught at the university / college / school level with the help of best teachers in India and elsewhere**.

In the first phase, IIT Bombay, IIT Madras, IIT Kanpur, IIT Guwahati, University of Delhi, Jawahar Lal Nehru University, IGNOU, IIM Bangalore, IIM Calcutta, Banaras Hindu University, alone as well as with the help of faculty from foreign universities will be offering courses in areas of engineering education, social science, energy, management, basic sciences.

At least one crore students are expected to benefit in 2 to 3 years through this initiative.

<u>Swayam Prabha: New</u>

Saransh

The schools identify areas of improvement in students, teachers and curriculum to facilitate and implement change via Saransh tool.

Currently, this **platform is available for classes 9th to 12th**.

Saransh is a **web portal launched for Central Board of Secondary Education (CBSE)**, with the primary **aim of promoting information and communication technologies in schools**.

The **Human Resource Development Ministry launched the portal on 07th November, 2015**. **Saransh is a self-review tool for all CBSE affiliated schools and parents** to **enhance communication between schools as well as parents. It offers a data-driven decision support system to aid parents in evaluating the strengths and weaknesses of children, which, in turn would assist in taking informed decisions for children's future.**

Dr. Ravi P. Agrahari

Objectives

This tool aims at **bringing transparency to the educational system in India**. It is considered to be a **novel step towards the progress of the** Digital India **campaign**. It intends to **provide e-books of all standards and subjects, thereby encouraging sustainable development**.

This **portal offers a one-to-one interaction platform between teachers and parents.** Besides, information **regarding competitions and attendance can now be directly shared with parents by using this tool**.

Schools can use this tool for analysing subject performance of all students as a whole which would aid in identifying fields of improvement.

Dr. Ravi P. Agrahari

Portal is equipped with 3 preceding years' data of all schools. Hence, a comparative year-on-year study can be done to recognise the well-performed areas and fields that still needs improvement.

A comparative study about the performance of various schools within a region, state or nation is now available at fingers reach.

UMANG

Unified Mobile Application for New-age Governance:
for mobile governance in India

- MeitY (Ministry of electronics and information technology)+ NeGD (National e governance division)
- Single platform

Topics of Discussion

SPECTRUM POLICY

- 2-G SPECTRUM SCAM

- ANTRIX-DEVAS DEAL

BROADBAND POLICY

ENCRYPTION

NATGRID

BIOMETRICS

DIGITAL SIGNATURE

VR and AR

TKDL (Traditional Knowledge Digital Library)

Digital India Initiative

Poject Nilgiri

Project Loon

SPECTRUM POLICY

Dr. Ravi P. Agrahari

BROADBAND POLICY

Dr. Ravi P. Agrahari

ENCRYPTION

The most effective **way for providing data security** is encryption. **Encrypted data represents a coded text.** You must **have a secret key or password which can enable you to decrypt it**, thus helping to read an encrypted file. On the contrary, an unencrypted data represents a plain text.

It is a **very effective tool for the security of important data** by excluding the unauthorised access. It can be done **through providing the decryption code only to the authorised persons.**

Military and governments have been using encryption since long, in order to facilitate secret communication. In recent times, it is more commonly used in protecting information.

Dr. Ravi P. Agrahari

NATGRID (National Intelligence Grid)

NATGRID is the integrated intelligence grid which connected databases of core security agencies of the *Government of India*.

This enables collection of comprehensive patterns of intelligence that the intelligence agencies can readily access. Soon after the attack of 26/11 in 2008, the requirement of such agency was realised, and hence it was first proposed.

Although, the **American *Lashkar* operative *David Coleman Headley*** had visited India many times, before the attack of 26/11 and performed a comprehensive study of the places that later became victim of the attack.

NATGRID is an intelligence sharing network. It combines data from the standalone databases of different agencies and ministries of the Indian government.

It acts as an efficient counter terrorism measure as it collects and combines a host of information from government databases. Such databases include tax and bank account details, credit card transactions, visa and immigration records and itineraries of rail and air travel.

The 11 central agencies that can take advantage of this network include: ***Research and Analysis Wing*, the Intelligence, *Central Bureau of Investigation, Financial intelligence unit*, *Central Board of Direct Taxes, Enforcement Directorate*, *Directorate of Revenue Intelligence*, *Narcotics Control Bureau*, *Central Board of Excise, NIA and Customs* and the Directorate General of Central Excise Intelligence.**

NATGRID was opposed on grounds of possible violations of privacy and leakage of confidential personal information.

BIOMETRICS

Dr. Ravi P. Agrahari

DIGITAL SIGNATURE

A digital signature means an **electronic signature** useful to **authenticate the identity of the sender** of a message or the signer of an electronic document. This ensures that the original content of the document is not changed.

Digital signatures are advantageous in the sense that they are **easily transportable, cannot be imitated** by someone else, and can be **automatically time-stamped.**

The **sender cannot easily repudiate** it later, which ensures that the original signed message is received.

Certain types of **encryption** make digital signa- ture effective to ensure **authentication. Encryption** takes all the data that one computer is sending to another and encodes it into a form that only the other computer will be able to decode.

Authentication verifies that information is coming from a trusted source. These two processes work hand in hand for digital signatures.

VIRTUAL REALITY

Virtual reality or is also called as **immersive multimedia** or **computer- simulated reality**. It is a computer technology **replicating an environment**, real or imagined, wherein, a **user's physical presence and environment are simultaneous which allows user interaction**.

VIRTUAL REALITY **artificially create sensory experience including sight, touch, hearing and smell.**

Either **a computer screen** or **a special virtual reality headset (head-mounted display**), display most up-to-date virtual realities. Some simulations include additional sensory information and focus on real sound through speakers or headphones targeted towards VR users.
Some advance haptic systems now include tactile information. It is usually known as force feedback in medical, gaming and military applications.

AUGMENTED REALITY

AR is a **live of direct or indirect view of a physical and real-world environment.** The elements of AR *are augmented (or* supplemented) by **computer-generated sensory input like sound, video, graphics or GPS data**.

It is related to a more general concept called **mediated reality**, in which modification is done by computer as a view of reality. Consequently, the technology enhances one's current perception of reality. Contrary to this, virtual reality replaces the real world with a simulated one.

TRADITIONAL KNOWLEDGE DIGITAL LIBRARY (TKDL)

- **TKDL is an Indian digital knowledge repository of traditional knowledge,** especially dealing with medicinal plants and their formulations used in Indian systems of medicine.

- TKDL was established with the collaboration of the Council of Scientific and Industrial Research and Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy Ministry of **in 2001.**

- It aims at protecting the ancient and traditional knowledge of the country from being exploited through bio-piracy and unethical patents, by documenting it electronically and classifying it as per international patent classification systems.

DIGITAL INDIA INITIATIVE

Government of India launched Digital India campaign so that **Government services are made available to citizens electronically by improving online infrastructure** and by increasing Internet connectivity. **It also aims at making the country digitally empowered in the field of technology**.

DeitY or Department of Electronics and Information Technology is umbrella organisation which cooperates and coordinates implementation of this programme. All the digital initiatives that domestic manufacturing policy are integrated and brought under this initiative.

Prime Minister Narendra Modi **launched Digital India on 1 July 2015**. **The initiative involves plans to connect rural areas with high-speed Internet networks**. Its three core components are:

1. Creating digital infrastructure
2. Service delivery in digital manner
3. Digital literacy

Dr. Ravi P. Agrahari

Through this, Government of India expects growth on multiple fronts. Specifically, the **nine 'Pillars of the Digital India** as identified and targeted by GOI are—

1. Broadband Highways
2. Universal access to Internet
3. Public internet access programme
4. E-Governance reforming through technology
5. Ekranti-electronic delivery of services
6. Information for all
7. Early harvest programme
8. IT for jobs
9. Electronic manufacturing

Its primary aim is to create a truly **participatory democracy with the application of digital technology**.

Other targets include connecting more than 120-crore Indians with their Government so that they could avail services and benefits of government services in real time and also quick grievance redressed.

The Vision of Digital India:

1. **Infrastructure development**
2. **Governance and online services**
3. **Digital empowerment of citizen**

PROJECT NILGIRI

The Indian Railways RailTel and Google under the name of **'Project Nilgiri'** which in **phase 1** are setting up Wi-Fi hotspots at 400 stations across India under the name of 'RailWire'. Wi-fi connectivity is being made available for free to passengers after mobile number verification through a one-time pass- word sent over SMS.

Google in phase 2 expansion plans to provide Wi-fi on board moving trains Pan India using cutting edge technology. It will use **Google's fibre technology to provide high speed Internet service**.

PROJECT LOON

It is a research and developed project by X (Google X) with a network of balloons travelling on the edge of space. It is designed for connecting people in rural and remote areas, thus enabling to fill cover- age gaps, and bring people back online post disasters.

The **balloons floats in the stratosphere approximately 20 Km** above the earth surface that is twice as high as airplanes and the weather. **Stratosphere has many layers of wind, and each layer of wind varies in terms of direction and speed**. Loon balloons move rising or descending into a layer of wind blowing in the desired direction of travel, when needed.

The balloons can be arranged to form one large communications network with moving wind, then the signal is passed across the balloon network and back down to the global Internet on Earth and ultimately connected to the balloon network directly from the phones and other LTE-enabled devices.

In june 2013, Project loon began with an experimental pilot project in New Zealand, where this technology was tested. Improvement in the technology in preparation for the next stages of the project as consequences of the pilot test, and subsequent tests in **New Zealand, California's Central Valley and in Northeast Brazil**.

Data Protection Bill

A committee chaired by **ex- Supreme Court Judge BN Srikrishna** just submitted its recommendations to the government as a draft law named as **Personal Data Protection Bill, 2018**.

This was a 10-member committee which was set up in July 2017 to recommend a framework for securing personal data in the digital world.
There are two different outcome documents submitted to the electronics and information technology ministry that will supervise a legislative effort and describe the legal boundaries of the personal data usage.

Data Protection Authority of India (DPA): It recommended setting up of a DPA, **an self- governing regulatory body responsible for the enforcement and implementation of the law in an effective manner** by having a chairperson and six full-time members.

In case of any plea against the DPA order , there should be an establishment of **an appellate tribunal or an existing appellate tribunal should be given powers for hearing and disposing of any appeal.**

Data localization

Data localization is the **act of storing data on any device that is physically present within the borders of a specific country where the data was generated**.

Why data localization is necessary for India?

• For securing citizen's data, data privacy, data sovereignty, national security, and economic development of the country.

• Recommendations by the RBI, the **committee of experts led by Justice BN Srikrishna**, the draft ecommerce policy and the draft report of the cloud policy panel show signs of data localisation.

The extensive data collection by technology companies, has allowed them to process and monetize Indian users' data outside the country. Therefore, **to curtail the perils of unregulated and arbitrary use of personal data, data localization is necessary**.

Dr. Ravi P. Agrahari

Digital technologies like **machine learning (ML), artificial intelligence (AI) and Internet of Things (IoT) can generate tremendous value out of various data.** It can **turn disastrous if not contained within certain boundaries**.

With the advent of cloud computing, Indian users' data is outside the country's boundaries, leading to a conflict of jurisdiction in case of any dispute.

Data localization is an **opportunity for Indian technology companies to evolve an outlook from services to products**. ***International companies will also be looking at the Indian market, and this will benefit the growth of the local ecosystem*.**

More data centres in India could mean new, **power-hungry customers for India's renewable energy market**. That means Data localisation could boost India's renewable energy.

Dr. Ravi P. Agrahari

Policies that imply data localization

The **Srikrishna Committee** wants to localise data for law enforcement to have easy access to data, to ***prevent foreign surveillance***, to ***build an artificial intelligence ecosystem*** in India, and because undersea cables through which data transfers take place are vulnerable to attacks.

Reserve Bank of India has also imposed a ***hard data localisation mandate on payment systems providers to store payment systems data only in India.***

Barring limited exceptions, telecom service providers are not allowed to transfer user information and accounting information outside India.

Goals set in the **Draft National Digital Communications Policy 2018**, and the **Guidelines for Government Departments for Contractual Terms related to Cloud Storage 2017**, draft e-commerce policy and the draft report of the cloud policy panel show signs of data localization.

Dr. Ravi P. Agrahari

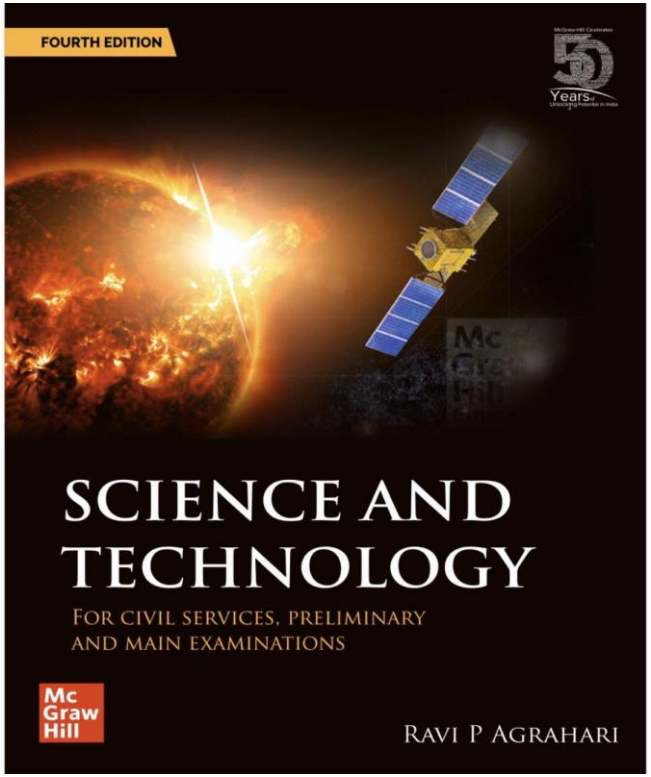
Space Internet

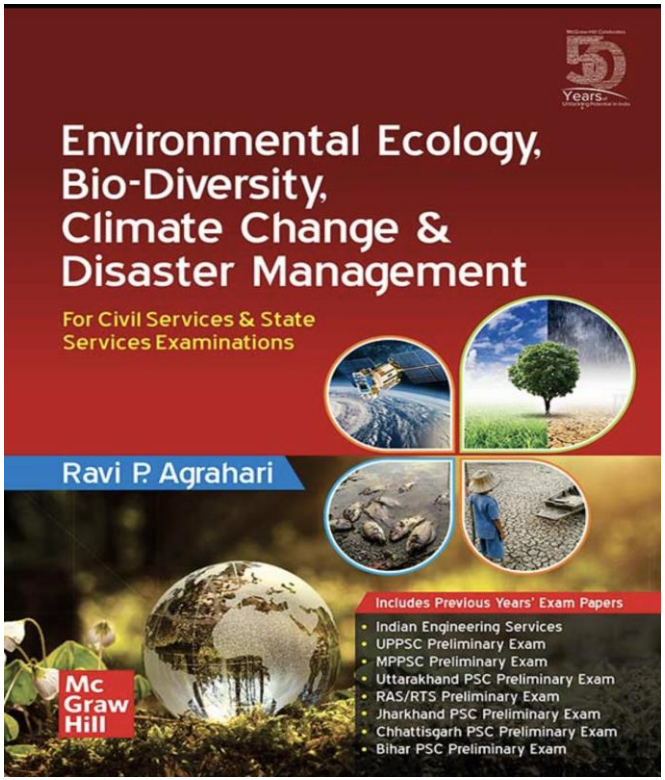
SpaceX, the world's leading private company in space technology, has launched 60 satellites into ***the low earth orbit,*** under the ***Starlink network project.***

What is it?

- The Starlink network is one of several ongoing efforts to start ***beaming data signals from space.***
- Under the project, the company intends ***to evolve into a constellation of nearly 12,000 satellites***.
- The aim is ***to provide low-cost and reliable space- based Internet services to the world.***
- The project announced in 2015, has now ***122 satellites in the orbit.***

THANK YOU





Best book in India for Science & Technology and Environment published by Mc Graw Hill

Dr. Ravi P. Agrahari