



## Revised Good Manufacturing Practices Standards

**For Prelims:** Good Manufacturing Practices, Pharmaceutical quality system, Pharmaceutical Companies, Drugs Manufacturing Standards, [Deaths of Children in the Gambia](#).

**For Mains:** Revised Good Manufacturing Practices Standards.

[Source: IE](#)

### Why in News?

Recently, the government of India has directed all pharmaceutical companies to implement the **Revised Good Manufacturing Practices (GMP)**, bringing their processes at par with Global Standards.

- Larger companies with a turnover of over Rs 250 crore have been asked **to implement the changes within six months**, while medium and small-scale enterprises with turnover of less than Rs 250 crore have been asked to do so within a year.

### What are Good Manufacturing Practices (GMP)?

- **About:**
  - GMP is a system for ensuring that **products are consistently produced and controlled according to quality standards**.
  - It is designed to **minimize the risks involved** in any pharmaceutical production that cannot be **eliminated through testing the final product**.
- **The Main Risks:**
  - Unexpected contamination of products
  - Causing damage to health or even death
  - Incorrect labels on containers, which could mean that patients receive the wrong medicine
  - Insufficient or too much active ingredient, resulting in ineffective treatment or adverse effects.
- [WHO \(World Health Organization\)](#) has established detailed guidelines for GMP. Many countries have formulated their own requirements for GMP based on WHO GMP.
- Others have harmonized their requirements, for example in the Association of South-East Asian Nations (ASEAN), in the European Union and through the Pharmaceutical Inspection Convention.
- The GMP system was first incorporated in India in 1988 in **Schedule M of the Drugs and Cosmetics Rules, 1945**, and the last amendment was done in June 2005. WHO-GMP standards are now part of the revised Schedule M.

### What are the Major Changes in Revised GMP Guidelines?

- **Pharmaceutical Quality System and Risk Management:**
  - The new guidelines introduce a **pharmaceutical quality system**, which emphasizes the

establishment of a comprehensive **quality management system throughout** the manufacturing process.

- Companies are now required to **implement quality risk management practices** to identify potential risks to the quality of their products and take appropriate preventive measures, also **regular quality reviews** of all products are **mandated to ensure consistency** in quality and processes.

▪ **Stability Studies:**

- Companies are now required to **conduct stability studies based** on climate conditions. This involves maintaining **drugs in stability chambers** at specified temperatures and humidity levels to assess their stability over time. Additionally, accelerated **stability tests may be conducted** to assess the product's stability under accelerated conditions.

▪ **GMP-Related Computerized Systems:**

- The new guidelines emphasize the use of computerized systems to **manage GMP-related processes**.
- These systems are designed to prevent data tampering, unauthorized access, and omission of data. They also automatically record all steps and checks to ensure adherence to processes without any tampering.

▪ **Investigational Products for Clinical Trials:**

- The new **schedule M also lists out the requirements** for additional types of products, including biological products, **agents with radioactive ingredients**, or plant-derived products.
- The new guidelines lay out requirements for **investigational products being manufactured** for clinical trials. This ensures that the products used in clinical trials meet the **necessary quality and safety standards**.

## What is the Need for Revised GMP Guidelines?

▪ **Alignment with Global Standards:**

- Implementation of the new norms will bring the Indian industry **on par with global standards**.

▪ **Incidents of Contamination:**

- There have been a **string of incidents where other countries have reported alleged contamination** in India-manufactured syrups, eye-drops, and eye ointments.
- The **deaths of 70 children in the Gambia**, 18 children in Uzbekistan, three persons in the United States, and six deaths in **Cameroon have been linked to these products**.

▪ **Deficiencies in Current Practices:**

- Risk-based inspection found numerous deficiencies in 162 manufacturing units in India.
  - Deficiencies include inadequate testing of raw materials, lack of product quality review, infrastructure issues, and missing qualified professionals.
- There are only 2,000 of the 10,500 drug manufacturing units in India at **present that meet global standards**, being WHO-GMP certified.
- The improved standards will **ensure that pharmaceutical companies follow standard processes**, quality control measures, and do not cut corners, improving the quality of medicines available in India as well as sold in the global market.

▪ **Confidence to Regulators from Other Countries:**

- Instituting the same quality across the industry will give confidence to regulators from other countries.
- In addition, it will improve the **quality of drugs in the domestic markets**. Most of the 8,500 manufacturing units that are not WHO-GMP certified supply medicine within India.

## Way Forward

- India's move to implement revised GMP guidelines signifies a significant step toward achieving global quality standards in the pharmaceutical industry.
- The revised standards **aim to enhance quality control measures**, proper documentation, and IT support, thus ensuring the production of high-quality medicines in India and for the global market.

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# India Implements Import Restrictions on Laptops, Computers, and Their Components

**For Prelims:** [Harmonised System of Nomenclature, Directorate General of Foreign Trade, production-linked incentive \(PLI\) scheme for IT hardware](#)

**For Mains:** Initiatives for self-reliance in India's technology sector, production-linked incentive (PLI) scheme

[Source: IE](#)

## Why in News?

Recently, India's [Directorate General of Foreign Trade \(DGFT\)](#) has announced that from **November 1, 2023**, it will restrict the import of laptops, computers, and their components, focusing on items under **Harmonised System of Nomenclature (HSN) Code 8471**. Restriction shall not be applicable to imports under baggage rules.

**Note:** Data processing machines are classified under HSN code 8471.

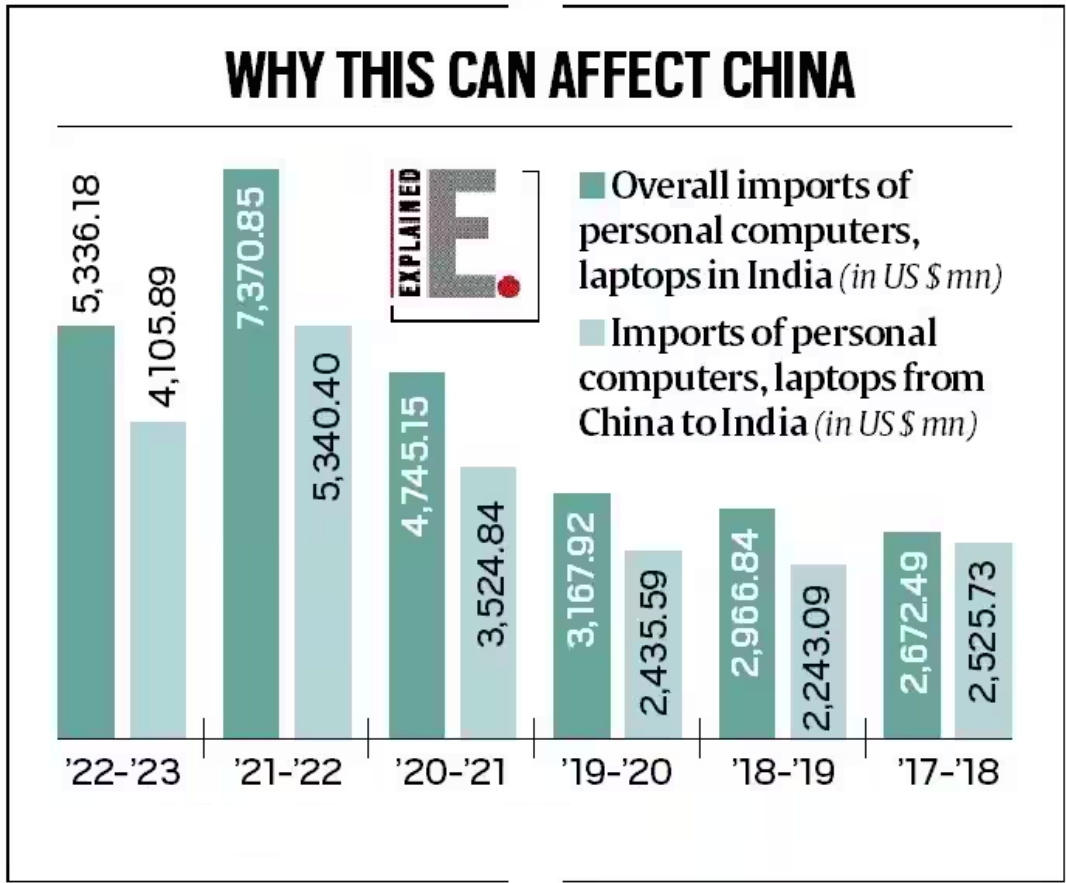
## What are the Reasons for Imposing Import Restrictions on Electronic Devices?

- These restrictions aim to **boost domestic manufacturing**, reduce reliance on **foreign imports**, particularly imports from China, and enhance **self-reliance in India's technology sector**.
- It aligns with government efforts to strengthen domestic production through the revitalized [production-linked incentive \(PLI\) scheme for IT hardware](#).
- The restrictions aim to prevent the **entry of electronic hardware with potential security vulnerabilities** that could **compromise sensitive personal and enterprise data**.
- By restricting imports, the government aims to create a conducive environment for indigenous manufacturers to expand their **global footprint**.

## How will this Restriction affect the Market and Consumers?

- The import restrictions on laptops and related devices may lead to **disruptions in the supply chain**, potentially affecting the **availability** of certain laptop models in the market.
  - The policy will likely create a supply crunch in the short term, as importers will have to **apply for licenses** and wait for approvals. This could lead to **higher prices and lower availability** of laptops, tablets, personal computers, and servers in the market.
- **Domestic manufacturers might benefit** from the restrictions, as consumers might turn to locally produced laptops if imports become limited.
  - The restrictions could incentivize the development of **domestic laptop manufacturing capabilities**, eventually leading to more advanced and competitive products.
- The policy will also affect the existing players in the laptop market, such as Dell, HP, Lenovo, Acer, Asus, and Apple, who have been importing most of their products from China, Vietnam, Taiwan, and other countries. They will have to **either shift their production to India or source from local manufacturers** who meet the quality standards.
- The policy will also create opportunities for **new entrants and local manufacturers**, who can leverage the PLI scheme and offer competitive products at affordable prices.

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### What is the Harmonised System of Nomenclature?

- The HSN is a system that assigns a **unique code to every product** that is traded internationally.
- The HSN code is used by **customs authorities** around the world to identify and **assess tariffs on imported goods**.
  - It is also used by **traders and exporters** to declare their goods and comply with the rules of origin.
- The HSN code was developed by the [World Customs Organization \(WCO\)](#) in 1988 and is updated every five years.

### Directorate General of Foreign Trade (DGFT):

- DGFT is a government body under the **Ministry of Commerce and Industry** that implements the **country's foreign trade policy**.
- DGFT was established in **1991 as a successor to the Chief Controller of Imports & Exports (CCI&E)**.
- DGFT is headed by the **Director General of Foreign Trade** at the headquarters in **New Delhi** and regional offices across the country.
- DGFT regulates and promotes **foreign trade through various schemes and measures, such as issuing licences, authorisations, certificates, incentives, etc.**
- DGFT also provides guidance and assistance to exporters and importers, and coordinates with other ministries, departments, agencies, and stakeholders on trade-related issues.

### Genetic Diversity in the Indian Population

**For Prelims: Genetic Diversity in the Indian Population, [DNA \(Deoxyribonucleic Acid\)](#), Endogamous practices, [Whole-Genome Sequencing](#).**

**For Mains: Genetic Diversity in the Indian Population.**

**Source: TH**

## Why in News?

Recently, a study by Institute for Human Genetics, University of California, has found stark genetic differences between **people from different regions of the Indian subcontinent**.

## What is the Methodology of the Study?

- The researchers collected **DNA (Deoxyribonucleic Acid)** from around 5,000 individuals, mainly people from across India, Pakistan, and Bangladesh. This cohort also contained DNA from some Malay, Tibetan, and other South-Asian communities.
- They performed **Whole-Genome Sequencing to identify all the instances** where the DNA either showed a change, was missing, or had additional base-pairs, or 'letters'.

## What are the Key Findings of the Study?

- **Endogamous Practices:**
  - There is **little mixing between individuals from different communities in the Indian subcontinent**.
  - Endogamous practices, such as caste-based, region-based, and **consanguineous (Closed Relatives) marriages**, contributed to conserved **genetic patterns** at the community level.
    - In an ideal scenario, there would have been random mating in a population, leading to greater genetic diversity and lower frequency of variants, which are linked to disorders.
- **Regional Trend:**
  - Compared to a relatively outbred population, like that of **Taiwan, the South Asian cohort** - and within it, the South-Indian and Pakistani subgroups - showed a **higher frequency of homozygous genotypes, possibly due to cultural factors**.
    - Humans typically have **two copies of each gene**. When an individual has two copies of the same variant, it is called a Homozygous Genotype.
    - Most genetic variants linked **to major disorders are recessive in nature** and exert their effect only when present in two copies. (Having different variants - i.e. being heterozygous - is usually protective.)
  - The South-Indian and **Pakistani subgroups were estimated to have a high degree of inbreeding** while the Bengali subgroup showed **significantly lower inbreeding**.
    - Not only did the South Asian cohort have a higher number of variants that could disrupt the functioning of genes, there were also **unique variants that were not found in European individuals**.
- **Risk of Higher Frequency of Homozygous Variants :**
  - The presence of rare homozygous variants increased the risk of disorders like **cardiovascular diseases, diabetes, cancers**, and mental disorders.

## What are the Other Studies on Genetic Diversity?

- In 2009, a study in Nature Genetics by the group of Kumarasamy Thangaraj, at the Centre for Cellular and Molecular Biology, Hyderabad, revealed that a small group of **Indians are prone to cardiac failure** at relatively young ages.
- The DNA of such individuals **lacked 25 base-pairs in a gene crucial for the rhythmic beating**

of the heart (scientists call it a 25-base-pair deletion).

- This deletion was **unique to the Indian population** and, barring a few groups in Southeast Asia, was not found elsewhere.
- This **deletion arose around 30,000 years ago**, shortly after people began settling in the subcontinent, and **affects roughly 4% of the Indian population** today.
  - Identifying such genetic novelties **helps understand population-specific health risks** and vulnerabilities.

### What is the Significance of Such Studies on Genetic Diversity?

- Studies have shown that specific genetic novelties are **linked to the health of India's populace**. Understanding these genetic variations **can lead to better interventions for major health concerns**.
- Conducting genetic studies within the country can protect **vulnerable communities from potential exploitation** by multinational companies and foreign research organizations.

### What is the Importance of a Detailed Map of the Indian Genome?

- India's incredible diversity necessitates **a detailed [Map of the Indian Genome](#)** for various reasons, including economic, matrimonial, and geographical factors.
- Such a map can aid in **understanding the genetic basis of health disparities** and guide population health interventions.

## UPSC Civil Services Examination, Previous Year Questions (PYQs)

**Q1. With reference to agriculture in India, how can the technique of 'genome sequencing', often seen in the news, be used in the immediate future? (2017)**

1. Genome sequencing can be used to identify genetic markers for disease resistance and drought tolerance in various crop plants.
2. This technique helps in reducing the time required to develop new varieties of crop plants.
3. It can be used to decipher the host-pathogen relationships in crops.

**Select the correct answer using the code given below:**

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

**Ans: (d)**

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## BharatNet Project

**For Prelims:** [BharatNet Project](#), [Optical Fibre](#), [Bharat Broadband Network](#), [Companies Act, 1956](#), [Village Level Entrepreneurs \(Udyamis\)](#), [Digital Divide](#).

**For Mains:** BharatNet Project, Significance and Challenges.

[Source: IE](#)

## Why in News?

Recently, the Union Cabinet has approved Rs 1.39 lakh crore for the **Modernization of the [BharatNet project](#)**.

## What is BharatNet Project?

### ▪ About:

- **National Optical Fibre Network (NOFN)** was launched in October 2011 and was renamed as **Bharat Net Project in 2015**.
- It is the **world's largest rural broadband connectivity programme** using **Optical Fiber**. And also a flagship mission implemented by **[Bharat Broadband Network Ltd. \(BBNL\)](#)**.
  - BBNL is a Special Purpose Vehicle (SPV) set up by the Government of India under the **[Companies Act, 1956](#)**.
  - It is being implemented by the Department of Telecommunication under the Ministry of Communications.
- This project involves altering the **execution strategy and employing [Village Level Entrepreneurs \(Udyamis\)](#)** to provide fiber connections to the last mile, thereby **accelerating the connectivity process** over the next 2.5 years.
- It is financed by the **[Universal Service Obligation Fund \(USOF\)](#)**.
  - **USOF** ensures that there is **universal non-discriminatory access** to quality ICT (Information and Communications Technology) services at **economically efficient prices** to people in rural and remote areas.
  - It was created under the Ministry of Communications in 2002.

### ▪ Objective:

- The project aims to **compete with private operators like Jio and Airtel** by leveraging its presence in rural areas where these private operators are less prominent.
- The quality of service provided by BharatNet is **expected to play a role in attracting users**.
- It aims to **connect all 640,000 villages** across India with high-speed internet access.
- It seeks to bring broadband internet connectivity to each of the more than 2.5 lakh gram panchayats across the country.
- The government intends to provide a minimum of **100 Mbps bandwidth at each Gram Panchayat through BharatNet** so that everyone, especially those in rural India, can access online services.

### ▪ Revamped Approach:

- Similar to private telecom companies like **Airtel and Jio**, the revamped BharatNet model will **collaborate with Village Level Entrepreneurs (VLEs)** for the implementation of **fiber connections**.
- Under this approach, the **government will bear the cost of extending the infrastructure** to homes, while the entrepreneurs **will contribute to the maintenance** and operation of home connections.
  - This partnership will work on a **50:50 revenue-sharing basis**.

### ▪ Phases of the Project:

- **First Phase:**
  - Provide more one lakh gram panchayats with broadband connectivity by laying **underground Optic Fibre Cable (OFC)** lines by December 2017.
- **Second Phase:**
  - Provide connectivity to all the gram panchayats in the country using an optimal mix of underground fibre, fibre over power lines, radio and **satellite media by March 2019**.
- **Third Phase:**
  - From 2019 to 2023, a state-of-the-art, future-proof network, **including fibre**

between districts and blocks, with ring topology to provide redundancy would be created.

## What are the Progress and Milestones of BharatNet Project?

- Previously, the challenge was to **extend fiber-based internet connections to households** after laying the infrastructure under the BharatNet project.
- To address this, a successful pilot was conducted in 60,000 villages, involving local partners to connect households.
- This success paved the way for the **involvement of Udyamis** in the project, expected to generate employment opportunities for around 250,000 people.
- Up to this point, the government has connected approximately 194,000 villages, providing internet **access to around 567,000 households**.
- Notably, 351,000 fiber connections have been **established using the new BharatNet Udyami project**.

## What are the Challenges to the BharatNet Project?

- **Slow Progress and Implementation Delays:**
  - The project has faced significant delays in implementation, with the pace of progress being slower than anticipated.
  - Despite the government's efforts to connect villages, **only about 194,000 out of the targeted 640,000 villages** have been connected so far. This slow progress has hindered the **project's ability to bridge the [Digital Divide](#)** in rural areas.
- **Infrastructure and Connectivity Issues:**
  - The challenging terrain, **lack of proper roads, and logistical difficulties** have all contributed to delays in connecting villages. Connectivity issues have also led to poor service quality and interrupted internet access in some areas.
- **Technical and Operational Issues:**
  - Technical challenges such as signal quality, bandwidth limitations, and network downtime **have affected the overall user experience**.
  - Moreover, managing the operations, maintenance, and complaint resolution processes in a decentralized manner involving local entrepreneurs has proven to be complex and requires effective coordination.
- **Competition from Private Operators:**
  - The presence of private telecom operators like Jio and Airtel in some rural areas poses a challenge for BharatNet. These private operators have established their own network infrastructure and services, making it important for BharatNet to offer competitive pricing and reliable service quality to attract users.

## Way Forward

- The BharatNet Project faces a combination of technical, financial, operational, and awareness-related challenges.
  - Addressing these challenges is essential for the project's success in achieving its goal of providing digital connectivity to every corner of rural India.
  - Efforts should be made to expedite the **implementation process by addressing bottlenecks and streamlining** the deployment of infrastructure. Collaborative efforts between government agencies, local bodies, and private partners can help speed up the process.
  - Ensuring a consistent and sustainable **flow of funds is crucial for the project's success**. Clear financial planning, allocation, and management are necessary to support the project's expansion and maintenance activities.
  - Focusing on improving the quality of service is vital to attract and retain users. This involves addressing technical issues, ensuring consistent bandwidth, and minimizing network downtime.
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# Digital Health Incentives Scheme

**For Prelims:** National Health Authority, [Ayushman Bharat Digital Mission](#), Digital Health Incentives Scheme, Unified Health Interface, [Blockchain technology](#), [Telemedicine](#)

**For Mains:** Features of Ayushman Bharat Digital Mission, Major Challenges Related to Digital Healthcare in India

[Source: PIB](#)

## Why in News?

[National Health Authority \(NHA\)](#) has announced an extension of its **Digital Health Incentives Scheme (DHIS)** under the **Ayushman Bharat Digital Mission (ABDM)**.

- The DHIS, offering incentives of up to Rs. 4 crores, has been extended till **December 31, 2023**.

## What is the Digital Health Incentives Scheme?

- **About:**
  - Under the **Digital Health Incentives Scheme (DHIS)**, hospitals, diagnostic labs, and digital health solution providers are **incentivized to embrace transformative digitization practices**.
  - The scheme operates with the goal of fostering a digitally inclusive healthcare ecosystem that aligns with the larger vision of **Ayushman Bharat Digital Mission**.
- **Eligibility:**
  - Health facilities (hospitals, diagnostic labs) and registered Digital Solution Companies (DSCs) under **ABDM's Health Facility Registry (HFR)** are eligible to participate in the scheme.
- **Incentive Calculation:**
  - The financial incentives are based on the number of digital health records created and linked to **Ayushman Bharat Health Account (ABHA) numbers of patients**.
- **Achievements:**
  - **Incentive Recipients:** As of June 2023, a total of **1205 health facilities have registered under the DHIS**, including 567 public and 638 private hospitals, clinics, and diagnostic labs.
  - **Digital Solution Companies:** Among the 25 registered digital solution companies, **22 are from the private sector**, demonstrating diverse participation.

## What is Ayushman Bharat Digital Mission?

- **About:**
  - The [Ayushman Bharat Digital Mission \(ABDM\)](#) is a national initiative that aims to **develop the digital health infrastructure** of the country. It was launched in **September, 2021**.
    - **Ayushman Bharat** is a flagship scheme of India which was launched **as recommended by the [National Health Policy 2017](#)**, to achieve the vision of **Universal Health Coverage (UHC)**.
- **Objective:**
  - It aims to provide **digital health IDs for all Indian citizens** to help hospitals, insurance firms, and citizens access health records electronically when required.
    - The **National Health Authority (NHA)** under the Ministry of Health and Family Welfare is the implementing Agency.

- **Unified Health Interface (UHI):**
  - Under ABDM, UHI is envisioned as an open protocol for various digital health services. UHI Network is an open network of **End User Applications (EUAs)** and participating Health Service Provider (HSP) applications.
    - UHI enables a wide variety of digital health services between patients and health service providers (HSPs) including **appointment booking, teleconsultation, service discovery and others.**
- **Ayushman Bharat Digital Mission Sandbox:**
  - The Sandbox, established under the mission, serves as a platform for testing technology and products.
    - It aids organizations, including private entities, in becoming **Health Information Providers or Users.**

## What are the Major Challenges Related to Digital Healthcare in India?

- **Infrastructure and Connectivity:** Despite advancements, **a significant portion of India still lacks reliable [internet connectivity](#)** and necessary digital infrastructure.
  - This hampers the ability to access and deliver digital healthcare services in remote and rural areas.
- **Digital Literacy:** Many people, especially in rural areas and older populations, may **not be familiar with technology or lack the necessary digital literacy** skills to effectively use digital healthcare platforms and services.
- **Data Privacy and Security:** Maintaining patient data privacy and security is a significant concern in **digital healthcare**. Ensuring that sensitive medical information remains confidential and protected from unauthorized access is crucial.
- **Telemedicine Regulations:** While telemedicine has gained popularity, **regulatory clarity regarding the practice, prescription of medications,** and teleconsultation across state lines has been a challenge.

## Way Forward

- **Blockchain for Health Records:** Implement **[blockchain technology](#)** to **securely store and manage electronic health records**. Patients could control access to their data while **ensuring data integrity and interoperability among healthcare providers.**
- **Data Analytics for Public Health:** Leverage **big data analytics to predict disease outbreaks, plan resource allocation,** and devise targeted interventions to manage public health challenges more effectively.
- **Online Training and Skill Development:** Train healthcare professionals in using digital tools effectively. Offer online courses for medical professionals to upskill in areas like **[telemedicine](#), data analytics, and AI applications in healthcare.**
- **Digital Health Policies and Regulations:** Establish comprehensive regulations and guidelines for digital health technologies, **ensuring patient privacy, data security, and ethical use of digital services and other technologies.**

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## Digital India RISC-V (DIR-V) Program

**[Source: PIB](#)**

### Why in News?

Recently, the **Union Minister of Electronics & IT** addressed the **Digital India RISC-V (DIR-V) Symposium** organized by IIT Madras in Chennai.

- The one-day symposium, organized by IIT Madras, emphasized the government's vision for DIR-V which currently aims to build a robust **ecosystem for RISC-V** with effective **public-private partnerships** and collaborations with premiere academic institutions.

## What is the Digital India RISC-V (DIR-V) Program?

### ▪ About:

- The DIR-V Program is a forward-looking initiative that aims to **uplift India's [semiconductor ecosystem](#)**.
- Its primary goal is to promote **indigenous innovation in the field of [microprocessors](#)**, laying the foundation for self-reliance.
- The program emphasizes three key principles: **innovation, functionality, and performance**, shaping its direction for the future.

### ▪ Navigating Complex Digital Realities:

- The program acknowledges the increasing demand for **silicon chips in today's digitized world**.
- As emerging technologies like **[5G](#) and [6G](#) reshape the digital landscape**, DIR-V anticipates finding applications in various areas such as **[cloud services](#), [Internet of Things \(IoT\)](#), and [sensors](#)**.

### ▪ Integral Role in High-Performance Computing:

- DIR-V is positioned at the heart of India's aspirations for high-performance computing.
- Collaborations with organizations like the **[Center for Development of Advance Computing \(C-DAC\)](#)** and public-private partnerships will ensure that DIR-V plays a pivotal role in these ambitious goals.

## RISC-V:

- The term RISC stands for "**reduced instruction set computer**" which executes few computer instructions whereas '**V**' stands for the 5th generation.
- It is an **open-source hardware ISA (instruction set architecture)** used for the development of **custom processors targeting a variety of end applications**.
- It also enables designers to **create thousands of potential custom processors, facilitating faster time to market**. The commonality of the processor IP also saves on software development time.
- RISC-V processors find versatile applications in **wearables, IoT, smartphones, automotive, aerospace**, and more, offering power efficiency, performance customization, and security. They excel in space-constrained designs and complex computational tasks.
  - The RISC was invented by **Prof. David Patterson around 1980 at the University of California, Berkeley**.

## Centre for Development of Advanced Computing (C-DAC):

- It is the leading R&D institution under the **Ministry of Electronics and Information Technology (MeitY)**, specializing in IT, Electronics, and related areas.
  - Established in 1988 to counter the denial of supercomputer imports, C-DAC's journey began with the development of **[India's first Supercomputers PARAM](#)**.
  - C-DAC plays a pivotal role in **India's IT revolution by continuously innovating and leveraging its expertise** to develop and deploy IT products and solutions aligned with the nation's policies and market needs.
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# India's Strategic Petroleum Reserves

[Source: PIB](#)

## Why in News?

Recently, the Ministry of Petroleum & Natural Gas provided valuable insights into the [Strategic Petroleum Reserve Programme](#) during a written reply in the Lok Sabha.

## What are Strategic Petroleum Reserves?

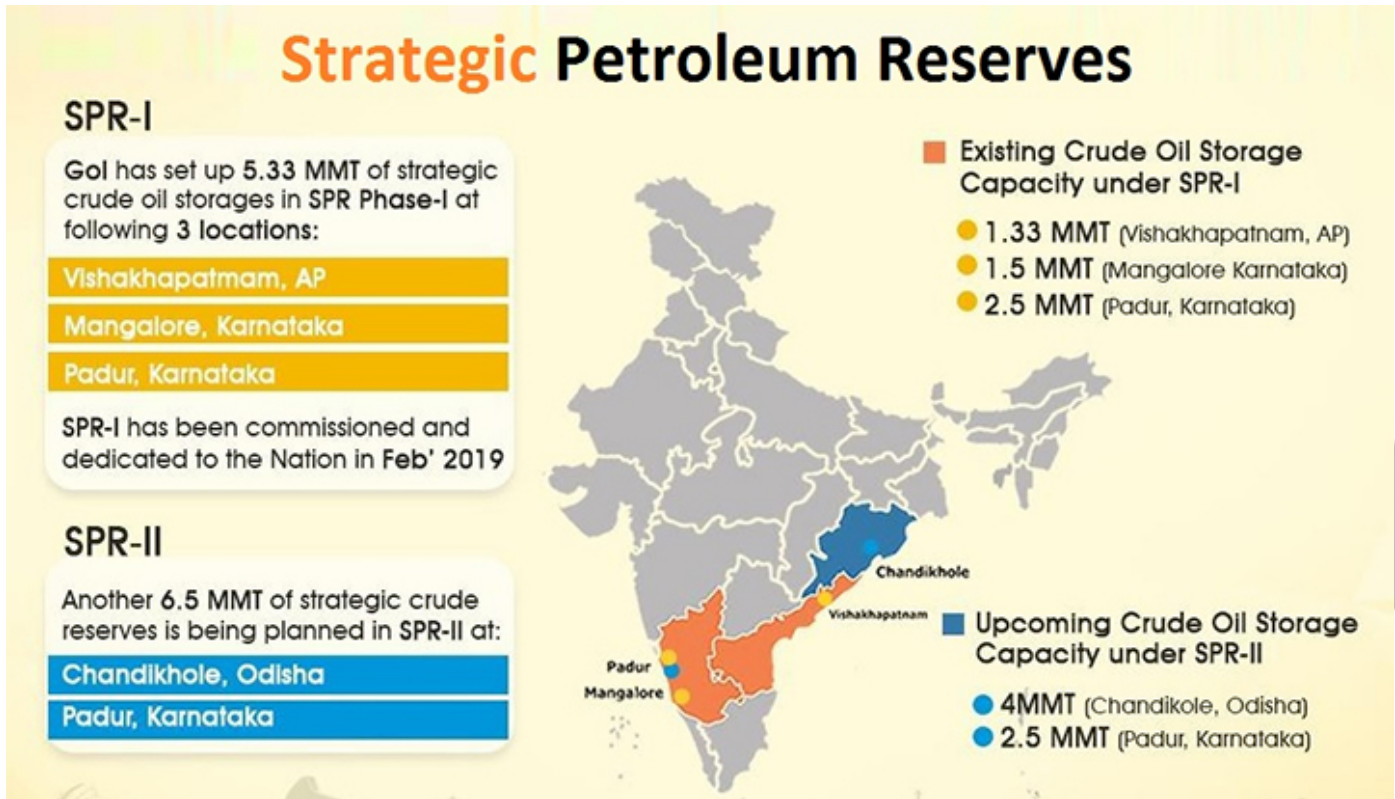
### ▪ About:

- **Strategic petroleum reserves (SPRs)** are stockpiles of [crude oil](#) maintained by countries ensuring a stable supply of crude oil even during times of geopolitical uncertainty or supply disruptions.
- These underground storage facilities play a crucial role in **maintaining a steady flow of energy resources for the nation's growth** and development.

## Note:

- As per the terms of the **International Energy Programme (I.E.P.) agreement**, every nation belonging to the [International Energy Agency \(IEA\)](#) is required to maintain **emergency reserves of oil amounting to a minimum of 90 days'** worth of their net oil imports.
- In case of a severe oil supply disruption, IEA members may decide to release these stocks to the market as part of a collective action.
- In **2017**, India attained the **status of an associate member within the International Energy Agency**.
- **Current SPR Infrastructure and Capacity in India:**
  - **Indian Strategic Petroleum Reserves Ltd. (ISPRL)** was created by the Government of India as a [Special Purpose Vehicle](#) under the Ministry of Petroleum & Natural Gas in **2004**.
  - India's existing underground SPR facilities have a combined capacity of **5.33 Million Metric Tonnes (MMT) of crude oil**. These storage sites are strategically positioned across two states:
    - Visakhapatnam, Andhra Pradesh - 1.33 MMT capacity
    - Mangaluru, Karnataka - 1.5 MMT capacity
    - Padur, Karnataka - 2.5 MMT capacity
- **Filling Strategy:**
  - Leveraging the opportunity presented by low crude oil prices in April/May 2020, India successfully filled its existing SPR facilities to full capacity.
    - This tactical move resulted in **substantial notional savings, estimated at around INR 5000 crore**.
- **Expansion Plans and Commercial-Cum-Strategic Facilities**
  - In July 2021, the Indian Government granted approval for the establishment of two additional commercial-cum-strategic SPR facilities.
    - Chandikhol, Odisha - 4 MMT capacity
    - Padur, Karnataka - 2.5 MMT capacity (expansion)
    - These facilities, totaling a storage capacity of 6.5 MMT, will operate under a [Public Private Partnership \(PPP\) mode](#).
- **Transfer and Timeline:**
  - At the conclusion of the 60-year Concession Period, the concessionaire will transfer the SPR, along with associated infrastructure such as **Single Mooring Points (SPMs) and onshore/offshore pipelines**, back to the Government of India.
- **History of Reserve:**
  - In 1990, during the **Gulf War in West Asia**, India was grappling with a significant energy crisis, with its **existing oil reserves deemed sufficient for only a mere three days**.

- Although India successfully averted the crisis at that time, the persistent risk of energy disruptions remains a tangible and ongoing concern.
- In an effort to tackle this **energy insecurity**, the administration led by **Atal Bihari Vajpayee** put forward the idea of establishing strategic petroleum reserves in 1998.
  - In the present day, as India's consumption of energy continues to rise, the rationale for developing such reserves becomes increasingly compelling.
- **Biggest Global Strategic Petroleum Reserves in the World:**
  - **United States- 714 million barrels**
  - **China- 475 million barrels**
  - **Japan- 324 million barrels**



## River Devika Rejuvenation Project

[Source: PIB](#)

### Why in News?

Recently, Union Minister of State (Independent Charge) Science & Technology sheds light on the progress of the **River Rejuvenation Project, Devika**.

- The Devika Rejuvenation Project is **nearing completion as of August 2023**, with substantial progress achieved in restoring the Devika River's ecological and cultural vitality.
- This initiative, inspired by the [Namami Ganga campaign](#), aims to safeguard the **sacred Devika River's purity and health**.

### What is the River Devika Rejuvenation Project?

- **Comprehensive Waste Management:**

- Focuses on **Liquid Waste Management**.
- Establishes a **network of pipes and manholes connecting households**.
- The primary goal is to ensure the **efficient disposal of liquid waste**, preventing pollution and maintaining the river's sanctity.
- **Complementary Solid Waste Management:**
  - In addition to liquid waste, the project also encompasses the crucial aspect of **Solid Waste Management**.
    - This entails the responsible **collection, disposal, and management of solid waste materials generated by local communities**.
  - Proper solid waste management is essential for preventing environmental degradation and maintaining the overall health of the river and its surroundings.
- **Financial Allocation Breakdown:**
  - The project receives **investments exceeding Rs 190 crores**.
  - Allocation is shared between **Central and Union Territory (UT) at a 90:10 ratio**.
- **Empowering Communities through PRIs:**
  - **Panchayati Raj Institutions (PRIs)** play a crucial role in ensuring the success of the project at the grassroots level.
  - The involvement of PRIs enhances community engagement, fosters ownership, and promotes sustainable development practices.

## What are the Key Facts about the Devika River?



- **Origin:**
  - Devika River originates from the hilly Suddha Mahadev temple in the **Udhampur district of Jammu and Kashmir** and flows down towards **western Punjab (now in Pakistan)** where it merges with the **Ravi River**.
- **Cultural Significance:**

- The river **holds religious significance** as it is revered by **Hindus as the sister of the river [Ganga](#)**.
- It is believed that Devika River is a manifestation of the Goddess Parwati herself to benefit the people of **Mader Desha that covers areas between river Ravi and [Chenab](#)**.

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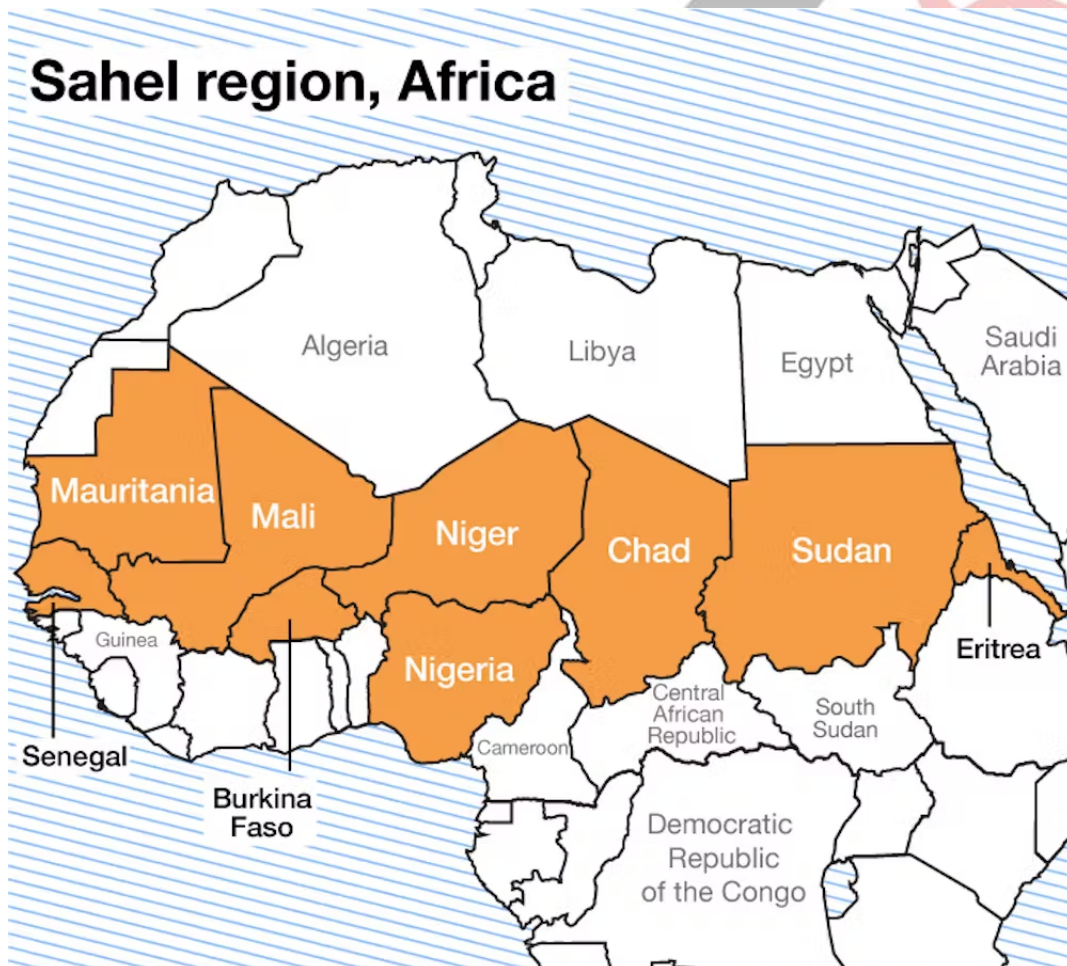
## Coup in Niger

[Source: TH](#)

### Why in News?

**Niger** is currently in the midst of a political upheaval as a [military coup](#) has taken control, ousting the democratically elected President.

- The [Sahel region](#), home to **Niger, [Burkina Faso](#), Chad, Mali, Mauritania, and Senegal**, has witnessed political instability and ethnic tensions.
  - **Weak governance, corruption, and ethnic clashes** led to military interventions under the pretext of restoring stability.

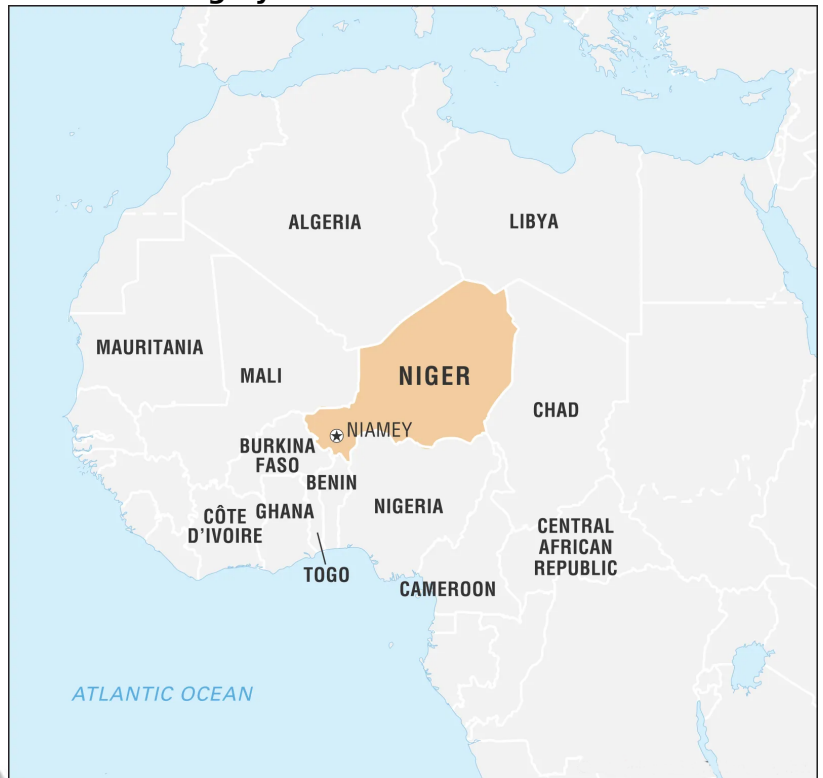


### What are the Key Points About Niger?

- **Geography:**
  - Niger is a landlocked country located in West Africa, bordered by **Algeria, Libya, Chad,**

### **Nigeria, Benin, Burkina Faso, and Mali.**

- Niger has more than 80% of its land area lying in the Sahara Desert.
  - Niger takes its name from the Niger River, which flows through the southwestern part of its territory
- It is the largest country in West Africa and **roughly twice the size of France.**
  - **Capital city: Niamey.**



- **Historical Context:**
  - Niger was a **French colony** until it gained independence in 1960.
  - The country experienced a series of military coups and political instability in the decades following independence.
- **Climate:** Desert, mostly hot, dry, dusty, tropical in extreme south.
- **Economy:** Niger is one of the **world's poorest countries** and faces challenges related to poverty, food security, and underdevelopment.
  - However, it has significant natural resources, including **gold mining reserves and a significant share of global uranium production.**
  - The economy is largely agrarian, with a focus on subsistence farming and livestock.
- **Ethnic Groups:** Hausa, Zarma-Songhai, Tuareg, Fulani, Kanuri, Arab, Toubou.
- **Official Language:** French language is recognized as the official language of Niger.

### **UPSC Civil Services Examination, Previous Year Question:**

**Q. In the recent years Chad, Guinea, Mali and Sudan caught international attention for which one of the following reasons is common to all of them? (2023)**

- (a) Discovery of rich deposits of rare earth elements
- (b) Establishment of Chinese military bases
- (c) Southward expansion of Sahara Desert
- (d) Successful coups

**Ans: (d)**



## Rapid Fire Current Affairs

### Iraq Eliminates Trachoma as a Public Health Problem

Recently, Iraq achieved a Milestone in Global Health by **Eliminating Trachoma**, a [neglected tropical disease](#) and the world's leading infectious cause of blindness.

- **Iraq has joined the league of 17 countries** in eliminating trachoma, according to the [World Health Organization \(WHO\)](#).
- The WHO has recognized Iraq as the **50th country to eliminate at least one neglected tropical disease**.
- Despite substantial progress, trachoma is still endemic in six countries in the WHO's **Eastern Mediterranean Region**.
- Trachoma starts as a **bacterial infection** caused by *Chlamydia trachomatis* and can lead to blindness if untreated.
- Disease thrives in **areas with water shortages, poor sanitation, and fly infestations**.
- WHO recommends the **SAFE strategy (Surgery, Antibiotics, Facial cleanliness, and Environmental improvement)** to eliminate trachoma.

Read more: [Global Report on Neglected Tropical Diseases](#)

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### Postal Life Insurance Introduces Direct Incentive Disbursement Program

- **Postal Life Insurance (PLI)** introduces pilot program "**Direct Incentive Disbursement**" in Delhi and Uttarakhand Circles.
- This initiative recognizes the crucial role of its **sales force**, Agents receive their **earned commissions directly in their Post Office Savings Bank (POSB) Accounts**, ensuring swift and secure transactions.
- This streamlined process boosts convenience for agents, **motivating them to deliver optimal performance and strengthen client relationships**.
  - Around two lakh sales force members, including **Gramin Dak Sevaks and Direct Agents, benefit from secure and instantaneous fund transfers**.
- **PLI was introduced in 1884**. It started as a welfare scheme for the benefit of **postal employees**.

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### Extinction Alert for Vaquita Porpoise

The [International Whaling Commission \(IWC\)](#) has sounded a dire warning regarding the [vaquita porpoise's survival](#), issuing its **first-ever 'extinction alert' on August 7, 2023**.

- With a mere 10 individuals left in the **Gulf of California, Mexico**, the vaquita faces an alarming decline from its population of approximately 570 in 1997.
- Vaquitas are the most [endangered species of porpoise](#). They are known for their **distinctive appearance**, characterized by dark rings around their eyes and dark patches on their lips.
- One of the **primary threats** to vaquita populations is **bycatch**, where they become **unintentionally trapped in gillnets meant for catching another species called totoaba fish** (its **swim bladders** are prized in Chinese cuisine).

Read more: [Vaquita porpoise](#)

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### Norseman Xtreme Triathlon

The 2023 edition of the **Norseman Xtreme Triathlon** took place on **August 5th** at [Norway](#) with 290 athletes from 35 countries taking part in the race.

- The Norseman Xtreme Triathlon is one of the most challenging and prestigious endurance events

in the world. It is a long-distance triathlon that consists of a **3.8 km swim, a 180 km bike ride, and a 42.2 km run**, with a total elevation gain of 5,230 meters.

- The race starts with a jump from a ferry into the cold waters of the **Hardangerfjord**, and ends at the summit of **Mount Gaustoppen**, one of the highest peaks in Norway.

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