



## Metal Industry: Current Outlook and Future Trends

**For Prelims:** Indian Metal Industry, Initiatives related to Metal Sector

**For Mains:** Significance of Indian Metal Sector and Associated Challenges

### Why in News?

Recently, [ASSOCHAM \(Associated Chambers of Commerce and Industry of India\)](#) has organized a conference named **Indian Metal Industry: Current Outlook and Future Trends**.

### What is the State of Indian Metal Industry?

#### ▪ About:

- With the emergence of economies driven by industrialisation at the beginning of the twentieth century, **countries with sound metal industries benefited from a first-mover advantage**.
- Metals have been **one of the core drivers of industrialisation**.

#### ▪ Statistics:

- As of October 2021, India was **the world's "Second-Largest Producer" of crude steel**, with an output of 9.8 MT. In FY22 (till January), the production of crude steel and finished steel stood at 98.39 MT and 92.82 MT, respectively.
- Per capita consumption of Steel in India grew by **10% to 77 kg during the financial year 2021-22**.
- India has **exported a record 13.5 million tonnes of finished steel in the year 2021-22 with a record production of over 120 million tonnes** of crude steel and 113.6 million tonnes of finished steel as per the provisional estimates.

#### ▪ Growth Drivers:

- The growth in the Indian steel sector **has been driven by the domestic availability of raw materials such as iron ore and cost-effective labour**.
- Consequently, the steel sector has been a major contributor to India's manufacturing output.
- The Indian **steel industry is modern, with state-of-the-art steel mills**.
  - It has always strived for **continuous modernisation of older plants and upgradation** to higher energy efficiency levels.

#### ▪ Significance:

- With huge deposits of **iron, coal, dolomite, lead, zinc, silver, gold, etc, India is a natural destination for the mining and metal industry**.
- Among metals, **steel has historically held a dominant position**. As a raw material and intermediate product, **production and consumption of steel are widely regarded as indicators of economic progress**, industrial development and forms the backbone of any economy and is expected to witness growth in the coming years as government incentives increase.
- The Metals and Mining sector in India is **expected to witness a major reform in the next few years**, owing to reforms such as [Make in India Campaign](#), [Smart Cities](#), [Rural Electrification](#), and a focus on building [renewable energy projects](#) under the

[National Electricity Policy](#) as well as the rise in infrastructure development.

- The Average [Index of Industrial Production](#) of Manufacturing of basic metals in the FY 2021-22 is **177.3 and has grown by 18.4 %**.
- Recognising the importance of bringing sustainability in coal mining, a **“Sustainable Development Cell” has been created** in the Ministry of Coal and in all coal PSUs to promote adoption of better environment management practices in coal mines.

▪ **Challenges:**

- **Capital:** Metal industry especially, the Iron and steel, requires **large capital investment which is difficult for a developing country like India to afford**. Many of the public sector integrated steel plants have been established with the help of foreign aid.
- **Low Productivity:** The per capita labour productivity in the country is at 90-100 tonnes **for the steel industry** which is very low. It is 600-700 tonnes per person in Korea, Japan, and other steel producing nations.
- **Low Potential Utilisation:** Durgapur steel plant makes use of approximately 50% of its potential which is caused by factors like strikes, shortage of raw materials, energy crisis, incompetent administration, etc.
- **Huge Demand:** Huge chunks of **steel and other metals are to be imported in order to meet the demands**. In order to save invaluable foreign exchange, productivity needs to be increased.
- **Inferior Quality of Products:** The weak infrastructure, capital inputs and other facilities eventually lead to metallurgical process more time-taking, expensive and produces **an inferior variety of alloys**.

## What are the Government Initiatives for Metal Sector?

- [National Steel Policy \(NSP\) 2017](#).
- [Steel Scrap Recycling Policy](#).
- [PLI Scheme For Specialty Steel](#).
- [Mission Purvodaya: Accelerated Development of Steel Sector](#).
- [Steel Research and Technology Mission of India](#).
- [Adoption of the Fourth Industrial Revolution \(Industry 4.0\)](#).

## Way Forward

- Industry and other stakeholders collectively will need to **identify all those areas and factors contributing to increase in the consumption of these metals to improve availability for the common man** at an affordable cost.
- It is important to **strengthen domestic capability through technology development and innovation**. This will not only enable the Indian metal and metallurgy sector to become a truly global one but will also **help make India a manufacturing hub for metals and metal products**.
- It is of critical importance to **rationalize the need for the development of mineral reserves in the country, especially minerals like Iron, Coal, Bauxite, Lime, Copper, Manganese, Chromium etc.** which are the backbone of economic development.
- It is imperative that different associations of industries go to rural India and inform the people about the schemes of the government through small meetings or seminars. They can run **skill development programs** there and can play an important role in nation building.
- It is important to reduce costs by **introducing technology and smart working**.
- It is highlighted that India has [competitive advantage](#) over its peers in steel production due to domestic availability of high-grade iron ore, strong domestic demand and availability of young workforce.
  - Due to the huge availability of minerals in the country, **metal sector can play a major role in the country's ambitious plans of [Self-Reliant India](#) and [USD 5 trillion economy by 2024-25](#)**.
- Huge scope for growth is offered by India's comparatively low per capita steel consumption and the expected rise in consumption due to increased infrastructure construction and the thriving

automobile and railways sectors.

## UPSC Civil Services Examination, Previous Year Questions

### Q. Why is there a concern about copper smelting plants?

1. They may release lethal quantities of carbon monoxide into environment.
2. The copper slag can cause the leaching of some heavy metals into environment.
3. They may release sulphur dioxide as a pollutant.

Select the correct answer using the code given below.

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

Ans: (b)

Exp:

- There are several different processes that can be used for copper production. One of the traditional processes is based on smelting in Reverberatory furnaces (or electric furnaces for more complex ores), producing matte (copper-iron sulphide). The matte from the furnace is charged to converters, where the molten material is oxidized in the presence of air to remove the iron and sulphur impurities (as converter slag) and to form blister copper.
- The principal air pollutants emitted from the process is sulphur dioxide and particulate matter and the main portion of the solid waste is discarded slag. **Hence, statement 3 is correct.**
- The slag produced can contain significant concentrations of a number of potentially toxic elements including arsenic, lead, cadmium, barium, zinc, etc. The slag can release these potentially toxic elements into the environment under natural weathering conditions and cause pollution of soils, surface waters and groundwater. **Hence, statement 2 is correct.**
- As slag is considered chemically inert, it is mixed with cement and is used to construct roads and railroad beds. It is also used for sandblasting. Moreover, it is also added to roofing shingles.
- Copper smelting does not release lethal quantities of carbon monoxide into the environment. **Hence, statement 1 is not correct.**

[Source: PIB](#)

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## Artificial Intelligence (AI) Chips

**For Prelims:** Artificial Intelligence, Active Neural Network, Machine Learning

**For Mains:** IT & Computers

### Why in News?

The adoption of [Artificial Intelligence \(AI\) chips](#) have risen in recent times with chipmakers designing

different types of these chips to power AI applications.

## What are AI chips?

### ▪ About:

- AI chips are **built with specific architecture and have integrated AI acceleration to support deep learning-based applications.**
  - **Deep learning**, more commonly known as **Active Neural Network (ANN) or Deep Neural Network (DNN)**, is a subset of **machine learning** and comes under the broader umbrella of AI.

### ▪ Functions:

- It **combines a series of computer commands or algorithms** that stimulate activity and brain structure.
- DNNs **go through a training phase, learning new capabilities from existing data.**
  - DNNs can then **inference, by applying these capabilities learned during deep learning training** to make predictions against previously unseen data.
  - Deep learning can make the process of collecting, analysing, and interpreting enormous amounts of data faster and easier.
- Chips like these, with **their hardware architectures, complementary packaging, memory, storage, and interconnect solutions**, make it possible for AI to be integrated into applications across a wide spectrum to turn data into information and then into knowledge. [LL](#)

### THE GIST

AI chips with their hardware architectures and complementary packaging, memory, storage and interconnect technologies, make it possible to infuse AI into a broad spectrum of applications to help turn data into information and then into knowledge.

The use of AI chips for NLP applications has increased due to the rise in demand for chatbots and online channels such as Messenger, Slack, and others that use NLP to analyse user messages and conversational logic.

Nvidia Corporation, Intel Corporation, IBM Corporation, Alphabet Inc., Samsung Electronics Co., Ltd, and Apple Inc. are some of the key players in the AI chip market.

### ▪ Types of AI Chips Designed for Diverse AI Applications:

- Application-Specific Integrated Circuits (ASICs), Field-Programmable Gate Arrays (FPGAs), Central Processing Units (CPUs) and GPUs.

- **Applications:**
  - AI applications include **Natural Language Processing (NLP), computer vision, robotics, and network security** across a wide variety of sectors, including **automotive, IT, healthcare, and retail.**
- **Reasons for the Rise:**
  - The increasing adoption of **AI chips in data centres** is one of the major factors driving the growth of the market.
  - Additionally, the **rise in the need for smart homes and cities**, and the surge in investments in AI start-ups are expected to drive the growth of the global AI chip market.
    - The Worldwide AI chip industry **accounted for approx. USD 8 billion in 2020** and is expected to **reach USD 195 billion by 2030**, growing at a **Compound Annual Growth Rate (CAGR) of 37.4% from 2021 to 2030.**

## What is the Significance of AI Chips over using General Purpose Hardware?

- **Faster Computation:**
  - Artificial intelligence **applications typically require parallel computational capabilities** in order to run sophisticated training models and algorithms.
  - **AI hardware provides more parallel processing capability** that is estimated to have up to 10 times more computing power in ANN applications compared to traditional semiconductor devices at similar price points.
- **High Bandwidth Memory:**
  - Specialized AI hardware is **estimated to allocate 4-5 times more bandwidth** than traditional chips.
    - This is necessary **because due to the need for parallel processing**, AI applications require significantly more bandwidth between processors for efficient performance.

## UPSC Civil Services Examination, Previous Year Questions

**Q. With the present state of development, Artificial Intelligence can effectively do which of the following? (2020)**

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

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

- (a) 1, 2, 3 and 5 only
- (b) 1, 3 and 4 only
- (c) 2, 4 and 5 only
- (d) 1, 2, 3, 4 and 5

**Ans: (b)**

**Exp:**

- Google is using the Internet of Things (IoT) and Artificial Intelligence (AI) from its DeepMind acquisition to **reduce energy consumption in its data centres** by as much as 30%. Hence, 1 is correct.
- Using AI as a tool to make music or aid musicians has been in practice for quite some time. In the 1990s, David Bowie helped develop the Verbasizer, which took literary source material and randomly reordered the words to create new combinations that could be used as lyrics. However, **as AI works in programmed ecosystem and does not have emotions** so it would be hard for an AI to create meaningful short stories and songs. Hence, 2 is not correct.

- AI combined with robotics and the Internet of Medical Things (IoMT) could potentially be the new nervous system for healthcare, presenting solutions to address healthcare problems. Integration of AI technology in cancer care could improve the accuracy and speed of diagnosis, aid clinical decision-making, and lead to better health outcomes. Hence, 3 is correct.
- Speech synthesis is the artificial production of human speech. It is a way to convert language to human voice (or speech). For example, Google's Assistant, Amazon's Echo, Apple's Siri, etc. Hence, 4 is correct.
- Potential cases of AI's use in the energy sector include energy system modelling and forecasting to decrease unpredictability and increase efficiency in power balancing and usage. However, it cannot be used for transmission of electrical energy. Hence, 5 is not correct. Therefore, option (b) is the correct answer.

[Source: TH](#)

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## Nagorno-Karabakh Region

**For Prelims:** Nagorno-Karabakh Region, INSTC

**For Mains:** Effect of Policies & Politics of Countries on India's Interests

### Why in News?

Recently, protests against **possible concessions by Armenia over [Nagorno-Karabakh](#) which** is disputed with neighboring Azerbaijan, **have increased**.

- In September 2020, clashes broke out that rapidly escalated to become the deadliest since the 1990s.

### What is Nagorno-Karabakh Region?

- **About:**
  - Nagorno-Karabakh is a **mountainous and heavily forested region** that under international law is recognised as part of Azerbaijan.
    - However, **ethnic Armenians who constitute the vast majority** of the population there reject Azeri rule (the legal system of Azerbaijan).
  - After **Azerbaijan's troops were pushed out of the region** following a war in the 1990s, these ethnic Armenians have been in administrative control of Nagorno-Karabakh, with support from Armenia.
- **Strategic Significance:**
  - The energy-rich Azerbaijan has **built several gas and oil pipelines across the Caucasus** (the region between the [Black Sea](#) and the [Caspian Sea](#)) to Turkey and Europe.
  - **Some of these pipelines pass close to the conflict zone** (within 16 km of the border).
  - In an open war between the two countries, **the pipelines could be targeted**, which would impact energy supplies and may even lead to higher oil prices globally.



## What is the Genesis of the Conflict?

- **Background of the Conflict:** The conflict can be traced back to the pre-Soviet era when the region was at the meeting point of Ottoman, Russian and the Persian empires.
  - Once Azerbaijan and Armenia became Soviet Republics in 1921, Russia (erstwhile Soviet Union) gave Nagorno-Karabakh to Azerbaijan but offered autonomy to the contested region.
  - In the 1980s, when the Soviet power was receding, separatist currents picked up in Nagorno-Karabakh. In 1988, the national assembly voted to dissolve the region's autonomous status and join Armenia.
  - However, Azerbaijan suppressed such calls, which led to a military conflict.
- **Flash Point of Conflict:** The self-declaration of independence by Nagorno-Karabakh in September 1991 in the backdrop of an imminent collapse of the USSR resulted in a war between Azerbaijan and Nagorno-Karabakh — supported by Armenia.
- **Ceasefire:** This clash lasted till a ceasefire agreement was reached in 1994, mediated largely by Russia. Since then, the [Organization for Security and Co-operation in Europe \(OSCE\) Minsk Group](#) co-chaired by the USA, Russia and France have engaged Azerbaijan and Armenia extensively to resolve the conflict.
  - By that time, Armenia had taken control of Nagorno-Karabakh and handed it to Armenian rebels.

## What is the Role of India?

- With Armenia, India has a friendship and cooperation treaty (signed in 1995), which, incidentally, would prohibit India from providing military or any other assistance to Azerbaijan.
- In the case of Azerbaijan, ONGC/OVL has made investments in an oilfield project in Azerbaijan and GAIL is exploring the possibilities of cooperation in LNG.
  - Azerbaijan also falls on the [International North South Transport Corridor \(INSTC\) route](#), connecting India with Russia through Central Asia.
  - It can also connect India with Turkey and beyond through the **Baku-Tbilisi-Kars passenger and freight rail link**.
- Armenia extends its unequivocal support to India on Kashmir issue whereas Azerbaijan not only opposes but also promotes Pakistan's narrative on this issue.
- India does not have a publicly articulated policy for the South Caucasus — **unlike** [“Neighbourhood First”](#), [“Act East”](#) or [“Central Asia Connect”](#).
  - The region has remained on the periphery of its foreign policy radar.

## Way Forward

- The **conflict is essentially a conflict between two international principles viz. the principle of territorial integrity** advocated by Azerbaijan and the **principle of the right to self-determination** invoked by Nagorno-Karabakh and supported by Armenia.
- **India has every reason not to support Azerbaijan's territorial integrity** as Azerbaijan has shown scant regard for India's territorial integrity violated by Pakistan in Jammu and Kashmir.
- At the same time, **it is difficult for India to publicly endorse Nagorno-Karabakh is right for self-determination** in view of the possible repercussions it can have repercussions for India as its adversaries like Pakistan may misuse it not only by making erroneous connections with Kashmir but also re-ignite secessionist movement in certain parts of India.

[Source: IE](#)

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## CPWD to Allow 4% Quota for Disabled

**For Prelims:** Rights of Persons with Disability Act, 2016, Various schemes related with PwD, CPWD

**For Mains:** Schemes for vulnerable, Rights of Persons with Disability Act, 2016

### Why in News?

Recently, the [Central Public Works Department \(CPWD\)](#) has started the process to identify 4% of posts of junior engineer (civil and electrical) to be reserved for **persons with disabilities (PwD)** as mandated by the [Rights of Persons with Disabilities Act, 2016\(RPwD Act\)](#).

### What are the Key points?

- The Central construction agency wrote to its regional offices to identify 4% of the posts and places where persons with benchmark disabilities can be posted.
- The CPWD asked the regional centers to also make **“appropriate reasonable accommodation”** for PwD, as the RPwD Act says.
- Earlier, the expert Committee (under CPWD) was of the view that the PwD need to have requisite technical qualification or the post in the first place and subsequently he or she has to compete in the selection process to be considered for the post,
- Later, the committee advised CPWD to follow the DEPwD's notification for recruitment to JE (civil and electrical).

### What are Constitutional Provisions related to Disability?

- **Article 41 of the [Directive Principles of State Policy \(DPSP\)](#)** states that State shall make effective provision for securing right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, within the limits of its economic capacity and development.
- The subject of 'relief of the disabled and unemployable' is specified in the **state list of the [Seventh schedule of the constitution](#)**.

### What are the Rights of Persons with Disabilities Act 2016?

- **Definition:**
  - Disability has been defined based on an evolving and dynamic concept.

- **Benchmark disability** refers to having at least **40% disability** of any type recognized under the Act.
- **Types:**
  - The types of disabilities have been **increased from 7 to 21**.
  - The Act added mental illness, autism, spectrum disorder, cerebral palsy, muscular dystrophy, chronic neurological conditions, speech and language disability, [thalassemia](#), [hemophilia](#), [sickle cell disease](#), multiple disabilities including deaf blindness, acid attack victims and [Parkinson's disease](#).
  - In addition, the Government has been authorized to notify any other category of specified disability.
- **Reservation:**
  - It **increased the reservation** for people suffering from disabilities **from 3% to 4% in government jobs and from 3% to 5% in higher education institutes**.
- **Education:**
  - Every child with benchmark disability between the age group of 6 and 18 years shall have the right to free education. Government funded educational institutions as well as the government recognized institutions will have to provide inclusive education.
- **Accessibility:**
  - Stress has been given to ensure accessibility in public buildings in a prescribed time frame along with the [Accessible India Campaign](#).
- **Regulatory Body:**
  - The Chief Commissioner for Persons with Disabilities and the State Commissioners will act as regulatory bodies and Grievance Redressal agencies, monitoring implementation of the Act.
- **Special Fund:**
  - A separate National and State Fund will be created to provide financial support to the persons with disabilities.

## What are the Various Government Schemes for PwDs ?

- **DISHA**
  - This is an early intervention and school readiness scheme for children up to 10 years with the disabilities covered under the **National Trust Act**.
- **VIKAAS**
  - A day care scheme for persons with autism, cerebral palsy, mental retardation and multiple disabilities, above 10 years for enhancing interpersonal and vocational skills.
- **SAMARTH**
  - A scheme to provide respite home for orphans, families in crisis, Persons with Disabilities (PwD) from [BPL](#), LIG families with at least one of the four disabilities covered under the National Trust Act.
- **GHARAUNDA**
  - This scheme provides housing and care services throughout the life of the person with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities.
- **NIRAMAYA**
  - This scheme is to provide **affordable Health Insurance** to persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities.
- **SAHYOGI**
  - A scheme to set up Caregiver Cells (CGCs) for training and creating skilled workforce of caregivers to care for Person with Disabilities (PwD) and their families.
- **PRERNA**
  - A marketing scheme to create viable & wide spread channels for sale of products and services produced by persons with autism, cerebral palsy, mental retardation and multiple disabilities.
- **SAMBHAV**
  - This is a scheme to set up additional resource centers in each city, to collate and collect the Aids, software and other forms of assistive devices.
- **BADHTE KADAM**
  - This scheme supports Registered Organizations (RO) of The National Trust to carry out activities for increasing the awareness of The National Trust disabilities.

▪ **Other Important Schemes:**

- [Accessible India Campaign: Creation of Accessible Environment for PwDs](#)
- [Assistance to Disabled Persons for Purchase/fitting of Aids and Appliances \(ADIP\)](#)
- [DeenDayal Disabled Rehabilitation Scheme](#)
- [National Fellowship for Students with Disabilities](#)
- [Unique Disability Identification Project](#)
- [International Day of Persons with Disabilities](#)
- [National Mental Health Programme.](#)

## **What is Central Public Works Department (CPWD)?**

- CPWD came into existence in July, 1854 when Lord Dalhousie established a central agency for execution of public works and set up Ajmer Provincial Division.
- It has been serving the nation for the last 164 years.
- It has now grown into a comprehensive construction management department, which provides services from project concept to completion, consultancy and maintenance management.
- It is headed by Director General (DG) who is also the Principal Technical Advisor to the Government of India. The regions and sub-regions are headed by Special DGs and Additional DGs respectively, while the zones in all state capitals (except a few) are headed by Chief Engineers.
- CPWD has pan India presence and has ability to undertake construction of complex projects even in difficult terrain and maintenance in post construction stage.
- CPWD had been involved in construction of stadiums and other infrastructure requirements for **Asian Games 1982** and **Commonwealth Games 2010**.

## **UPSC Civil Services Examination, Previous Year Questions**

**Q. India is home to lakhs of persons with disabilities. What are the benefits available to them under the law? (2011)**

1. Free schooling till the age of 18 years in governmentrun schools.
2. Preferential allotment of land for setting up business.
3. Ramps in public buildings.

**Which of the statements given above is/are correct?**

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

**Ans: (d)**

**Exp:**

- As the question was asked in 2011, Rights of Persons with Disabilities Act, 2016 didn't existed. The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 ensures equal opportunities for the people with disabilities and their full participation in the nation building.
- The Act provides for education, employment and vocational training, reservation, rehabilitation and social security for the persons with disabilities. The Act directs Governments and the local authorities to ensure that every child with a disability has access to free education in an appropriate environment till the age of 18 and endeavour to promote the integration of students with disabilities in the normal schools. **Hence, statement 1 is correct.**
- Further, the Act directs Governments and local authorities to frame schemes in favour of persons with disabilities, for the preferential allotment of land (at concessional rates) for house, setting up

a business, establishment of special schools, establishment of factories by entrepreneurs with disabilities. **Hence, statement 2 is correct.**

- The Act provides for ramps in public buildings, including hospitals, railway stations, airports, etc. **Hence, statement 3 is correct.**

[Source:TH](#)

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## Investment Incentive Agreement (IIA)

**For Prelims:** Investment Incentive Agreement (IIA), OPIC, Indian Ocean Region, QUAD, Malabar exercise, BECA, GSOMIA, COMCASA, ISRO, NASA

**For Mains:** Bilateral Groupings & Agreements, India US Relations

### Why in News?

Recently, India and the United States signed an **Investment Incentive Agreement (IIA)** at Tokyo, Japan.

### What is an Investment Incentive Agreement (IIA)?

- **About:**
  - This IIA **supersedes the Investment Incentive Agreement** signed between both the countries in the year 1997.
  - There have been significant developments since the earlier IIA was signed in 1997, such as the **founding of a new organization called Development Finance Corporation (DFC)**.
    - DFC as a **successor agency of the erstwhile Overseas Private Investment Corporation (OPIC)** after the enactment of a recent legislation of USA, the **BUILD Act 2018**.
- **Purpose:**
  - To **keep pace with the additional investment support programmes**, offered by the DFC, such as debt, equity investment, investment guaranty, investment insurance or reinsurance, feasibility studies for potential projects and grants.
  - The Agreement is the **legal requirement for DFC**, to continue providing investment support in India.
  - It is expected that **signing of IIA would lead to enhanced Investment support provided** by DFC in India, which shall further help in India's development.

### What is the Status of DFC in India?

- DFC or their predecessor agencies **have been active in India since 1974** and have so far **provided investment support worth USD 5.8 billion** of which USD 2.9 billion is still outstanding.
- Proposals worth USD 4 billion are under consideration by DFC for providing investment support in India.
- DFC has provided investment support in sectors that matter for development such as [Covid-19](#)

[vaccine](#) manufacturing, healthcare financing, renewable energy, [Small and Medium Enterprises \(SME\) financing](#), financial inclusion, infrastructure etc.

## What is the current Status of India-US Relations?

- **About:**
  - India-US bilateral relations have **developed into a "global strategic partnership"**, based on shared democratic values and increasing convergence of interests on bilateral, regional and global issues.
  - In 2015, both the countries issued a **Delhi Declaration of Friendship** and adopted a **Joint Strategic Vision for Asia-Pacific** and the [Indian Ocean Region](#).
- **Civil-Nuclear Deal:**
  - The [bilateral civil nuclear cooperation](#) agreement was signed in October 2008.
- **Energy and Climate Change:**
  - As a priority initiative under the **PACE (Partnership to Advance Clean Energy)**, the US Department of Energy (DOE) and the Government of India have established the Joint Clean Energy Research and Development Center (JCERDC) designed to promote clean energy innovations by teams of scientists from India and the United States.
  - [India-US Clean Energy Agenda 2030 Partnership](#) was launched at the Leaders climate summit 2021.
- **Defence Cooperation:**
  - Defence relationship has emerged as a major pillar of India-US strategic partnership with the signing of '**New Framework for India-US Defense Relations**' in 2005 which was further updated for 10 years in 2015.
  - India and US inked **important defence pacts in the last few years** and also formalised the four nation alliance of [QUAD \(India, US, Japan and Australia\)](#).
    - The alliance is seen as an important counter to China in the Indo-Pacific.
  - The [Malabar exercise](#) in November 2020 portrayed a high point in Indo-US strategic ties, it was the **first time in 13 years** that all four countries of QUAD came together sending a strong message to China.
  - India now has access to American bases from [Djibouti in Africa](#) to Guam in the Pacific. It can also access advanced communication technology used in US defence.
  - India and US have **four foundational defence agreements:**
    - [Basic Exchange and Cooperation Agreement for Geospatial Intelligence \(BECA\)](#).
    - [General Security of Military Information Agreement \(GSOMIA\)](#).
    - Logistics Exchange Memorandum of Agreement (LEMOA).
    - [Communication Compatibility and Security Agreement \(COMCASA\)](#).
  - India-US Counter-Terrorism Cooperation Initiative was signed in 2010 to expand collaboration on counter-terrorism, information sharing and capacity building.
  - A tri-services exercise- [Tiger Triumph](#)- was conducted in November 2019.
  - Bilateral and regional exercises include: Yudh Abhyas (Army), [Vajra Prahar](#) (Special Forces), RIMPAC, Red Flag.
- **Trade:**
  - The US is **India's second largest trading partner** and a major destination for India's exports of goods and services.
  - The US replaced Mauritius as the second largest source of [foreign direct investment](#) into India during 2020-21.
  - The previous US government [ended India's special trade status \(GSP withdrawal\)](#) and also imposed several bans, India also retaliated with bans on 28 US products.
- **Science & Technology:**
  - [Indian Space Research Organization \(ISRO\)](#) and [National Aeronautics and Space Administration \(NASA\)](#) are working together to realize a joint microwave remote sensing satellite for Earth observation, named [NASA-ISRO Synthetic Aperture Radar \(NISAR\)](#).

## Way Forward

- India is **emerging as a leading player in an international system** that is undergoing an unprecedented transformation. It shall use its present situation to explore opportunities to further

its vital interests.

- **India and the US are strategic partners today** in the true sense of the term - a partnership among mature major powers that is not seeking a complete convergence but managing differences by ensuring a continuous dialogue and channeling these differences into crafting new opportunities.

[Source: TH](#)

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## Indo-Pacific Economic Framework

**For Prelims:** Indo-Pacific, Quad, Paris Agreement, CEPA (Comprehensive Economic Partnership Agreements)

**For Mains:** Groupings & Agreements Involving India and/or Affecting India's Interests, Bilateral Groupings & Agreements, QUAD, Indo-Pacific and its Significance

### Why in News?

Recently, India's Prime Minister participated in an event in Tokyo to launch the **Indo-Pacific Economic Framework (IPEF)**.

- This economic initiative came a day before the **second in-person summit** of the [Quad leaders](#) (India, the US, Australia and Japan) in Tokyo.

### What is QUAD?

- It is the grouping of **four democracies** -India, Australia, the US, and Japan.
- All four nations find a common ground of being democratic nations and also support the common interest of unhindered **maritime trade and security**.
- The Quad is billed as four democracies with a shared objective to ensure and support a **“free, open and prosperous”** Indo-Pacific region.
- The idea of Quad was first mooted by **Japanese Prime Minister Shinzo Abe in 2007**. However, the idea couldn't move ahead with Australia pulling out of it, apparently due to Chinese pressure.
- Finally in 2017, **India, Australia, the US, and Japan**, came together and formed this **“quadrilateral”** coalition.

### What is the Significance of IPEF?

- **About:**
  - It is a US-led initiative that aims to strengthen economic partnership among participating countries to enhance resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness in the [Indo-Pacific region](#).
  - The IPEF was launched with a dozen initial partners who together represent **40% of the world GDP**.
- **Opportunity for Indo-Pacific Region:**
  - It is a declaration of a collective desire to make the Indo-Pacific region an engine of global economic growth.

- **An Economic Vision:**
  - The Indo-Pacific covers half the population of the world and more than **60% of the global GDP** and the nations who will join this framework in the future, are signing up to work toward an economic vision that will deliver for all people.
- **Focus Areas:** Unlike traditional trade blocs, IPEF won't negotiate tariffs or market access, and the framework will focus on integrating partner countries in **four areas which include:**
  - **Trade:** It intends to build high-standard, inclusive, free, and fair-trade commitments and develop new and creative approaches in trade and technology policy that advance a **broad set of objectives that fuels economic activity** and investment, promotes sustainable and inclusive economic growth, and benefits workers and consumers.
  - **Supply Chains:** IPEF is committed to improving transparency, diversity, security, and sustainability in supply chains to make them more resilient and well-integrated.
    - To coordinate crisis response measures; expand cooperation to better prepare for and mitigate the effects of disruptions to better ensure business continuity; improve logistical efficiency and support; and ensure access to key raw and processed materials, semiconductors, critical minerals, and clean energy technology.
  - **Clean Energy, Decarbonization, and Infrastructure:** In line with the **Paris Agreement** goals and efforts to support the livelihood of peoples and workers, it plans to accelerate the development and deployment of clean energy technologies to decarbonize our economies and build resilience to climate impacts.
    - This also involves deepening cooperation on technologies, on mobilizing finance, including concessional finance, and on seeking ways to improve competitiveness and enhance connectivity by supporting the **development of sustainable and durable infrastructure** and by providing technical assistance.
  - **Tax and Anti-Corruption:** It is committed to promoting fair competition by enacting and enforcing effective and robust tax, anti-money laundering, and anti-bribery regimes in line with existing multilateral obligations, standards, and agreements to curb tax evasion and corruption in the Indo-Pacific region.
    - This involves sharing expertise and seeking ways **to support the capacity building** necessary to advance accountable and transparent systems.

## What is India's Vision for Indo-Pacific Region?

- India's trade in this region is growing rapidly, with overseas investments being directed towards the East, e.g., the **Comprehensive Economic Partnership Agreements** with Japan, South Korea, and Singapore, and the Free Trade Agreements with **ASEAN (Association of Southeast Asian Nations)** and Thailand.
- India has been active in **championing a Free and Open Indo-Pacific**. The US, Australia, and the members of the ASEAN have all expressed a common view that **India plays a greater role in the region**.
- India, along with its **Quad partners**, is upping its game in the Indo-Pacific.
- India's view is to work with other like-minded countries in the Indo-Pacific region to cooperatively manage a rules-based multipolar regional order and **prevent any single power from dominating the region or its waterways**.

[Source: IE](#)

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## Indira Gandhi Shabri Rozgar Guarantee Yojana

**For Prelims:** Mahatma Gandhi NREGA, Urban Local Bodies

## Why in News?

The Rajasthan government has come up with the job description under its much-touted **Indira Gandhi Shahri Rozgar Guarantee Yojana**.

- Announcing the employment scheme for urban areas on the lines of [Mahatma Gandhi NREGA](#) for rural areas in his budget speech
- While MGNREGA assists people in rural areas, there is no such scheme for street vendors, as well as those working at dhabas and restaurants in urban areas.

## What is the Scheme?

- **About:**
  - Under the scheme, **100 days of employment per year will be provided to families residing in urban areas.**
  - The ratio of cost of material to payment for labour work of “general nature” will be in the ratio of 25:75, while for special works, it will be 75:25.
  - The **focus is on providing as many jobs as possible.**
  - On the other hand, **creation of assets** will require a higher material component, hence **under ‘special works’ the ratio is 75:25.**
- **Eligibility:**
  - All those aged between **18 and 60 years and residing within urban body limits are eligible for the scheme**, and in special circumstances such as a pandemic or a calamity, migrant labourers may be included.
- **Components:**
  - **Environmental Conservation:**
    - The tree plantation in public places, maintenance of parks, watering plants on footpaths and dividers, preparing nurseries under departments of [urban local bodies \(ULBs\)](#), forest, horticulture and agriculture.
  - **Water conservation:**
    - One may undertake works for improvement of cleanliness and improvement of ponds, lakes, step-wells, etc.; construction, repair and cleaning of rainwater harvesting structures; and restoration of water sources.
  - **Cleanliness and Sanitation-Related Works:**
    - This includes works related to solid waste management, labour work, including door to door garbage collection and segregation, separation of waste at the dumping sites, cleanliness and upkeep of public/community toilets, cleaning of nullah/drain as well as removing waste created due to construction and demolition works.
  - **Works Related to Defacement of Property:**
    - This includes labour work to remove encroachments, as well as illegal boards/hoardings/banners, etc. and painting of dividers, railings, walls and other publically visible spaces.
  - **Convergence:**
    - People under this scheme can be employed in other centre or state level schemes, already having a material component, and which require labour work.
  - **Service:**
    - It includes labour work at gaushalas and ‘multitask services’ at offices of civic bodies, record keeping, etc. Also, work related to heritage conservation.
    - Miscellaneous works, such as those related to security/fencing/boundary wall/guarding of urban civic bodies and public lands; development and management of parking spots within urban civic body limits; catching and management of stray animals, etc.

## Why is Social Security needed for Urban Areas?

- **Major Contributor to Economy:** Urban areas is an integral part of the development process of the country. As in most countries, India's urban areas make a major contribution to the country's economy.
  - Indian cities contribute to about **two-third of the economic output**, host a growing share of the population and are the main recipients of **FDI** and the originators of innovation and technology.
- **Magnet For Businesses:** The cities are a collective magnet for a great diversity of economic activities.
  - The cities attract business and people, as a result of scale and agglomeration advantages (supply of educational facilities, presence of suppliers, etc).
- **Hotbed of Social Capital:**
  - The cities are a hotbed of social capital or as a 'melting pot' of culturally or socially diversified groups.
- **Cities are Power Centres:**
  - The city is an ever-expanding power-block, which reinforces its position to the detriment of towns and villages in its hinterland.

## What is the Significance of Urban Employment Schemes?

- Ensures **social inclusion by strengthening the livelihood base** of rural poor.
- It gives **urban residents a statutory right to work and thereby ensures the right to life (Art 21) guaranteed under the Constitution.**
  - E.g. in Madhya Pradesh, the new State government has launched the "Yuva Swabhiman Yojana"
- It provides **employment for skilled and unskilled workers** among urban youth and addresses the concerns of underemployment and unemployment.
- **Such programmes can bring in much-needed public investment in towns, which, in turn, could** boost local demand, improve the quality of urban infrastructure and services, restore urban commons, skill urban youth, increase the capacity of ULBs.

## What are the other Initiatives by Government?

- [Support for Marginalized Individuals for Livelihood and Enterprise \(SMILE\)](#)
- [PM-DAKSH \(Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi\)](#)
- [Mahatma Gandhi National Rural Employment Guarantee Act \(MGNREGA\)](#)
- [Pradhan Mantri Kaushal Vikas Yojana \(PMKVY\)](#)
- [Start Up India Scheme](#)
- [Jharkhand:](#)
  - Birsa Harit Gram Yojana (BHGY), Neelambar Pitambar JAL Sammridhi Yojana (NPJSY) and Veer Sahid Poto Ho Khel Vikas Scheme (VSPHKVS).

## Way Forward

- There is a **need to provide livelihood safety access** to urban areas.
  - The livelihood safety net must have comprehensive coverage. Such a net, provided by the [Mahatma Gandhi National Rural Employment Guarantee Scheme \(MGNREGS\)](#), exists only in rural areas.
- An urban livelihood **scheme can be launched within the existing fiscal space.**
  - If not, the Union and States can provide resources together and empower the urban local bodies.
- Setting a separate minimum wage for rural and urban areas does not cause migration to urban areas since the higher cost of living in urban areas has an offsetting effect.
- The focus must shift from asset creation to service delivery. Restricting it to asset creation or wage-

material ratios may be suboptimal in urban settings.

- The focus should be on enhancing the quality of municipal services.

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

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