

PERFECT 7

WEEKLY

CURRENT AFFAIRS

January : 2020 / Issue- 3

IMPROVING ACCESS TO AGRICULTURAL CREDIT

New Perspectives

- Drones' Operations and Regulations in India
- Opening up the Coal Mining Sector : An Analysis
- State Energy Efficiency Index 2019 : An Overview
- Combating Dengue : Requires Holistic Approach
- Six Focused Areas for India's Foreign Policy in 2020
- National Strategy for Financial Inclusion : An Overview



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DHYEYA IAS : AN INTRODUCTION



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Vinay Kumar Singh
CEO and Founder
Dhyeya IAS



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Q H Khan
Managing Director
Dhyeya IAS

PERFECT 7 : AN INTRODUCTION



With immense pleasure and gratitude I want to inform you that the new version of 'Perfect-7', from the Dhyeya IAS, is coming with more information in a very attractive manner. Heartily congratulations to the editorial team. The 'Perfect-7' invites a wider readership in the Institute. The name and fame of an institute depends on the caliber and achievements of the students and teachers. The role of the teacher is to nurture the skills and talents of the students as a facilitator. This magazine is going to showcase the strength of our Institute. Let this be a forum to exhibit the potential of faculties, eminent writers, authors and students with their literary skills and innovative ideas.

Qurban Ali

Chief Editor

Dhyeya IAS

(Ex Editor- Rajya Sabha TV)



We have not only given the name 'Perfect 7' to our magazine, but also left no stone unturned to keep it 'near to perfect'. We all know that beginning of a task is most challenging as well as most important thing. So we met the same fate.

Publishing 'Perfect 7' provided us various challenges because from the beginning itself we kept our bar too high to ensure the quality. Right from the very first issue we had a daunting task to save aspirants from the 'overdose of information'. Focusing on civil services exams 'Perfect 7' embodies in itself rightful friend and guide in your preparation. This weapon is built to be precise yet comprehensive. It is not about bombardment of mindless facts rather an analysis of various facets of the issues, selected in a systematic manner. We adopted the 'Multi Filter' and 'Six Sigma' approach, in which a subject or an issue is selected after diligent discussion on various levels so that the questions in the examination could be covered with high probability.

Being a weekly magazine there is a constant challenge to provide qualitative study material in a time bound approach. It is our humble achievement that we feel proud to make delivered our promise of quality consistently without missing any issue since its inception.

The new 'avatar' of 'Perfect 7' is a result of your love and affection. We feel inspired to continue our efforts to deliver effective and valuable content in interesting manner. Our promise of quality has reached you in previous issues and more are yet to come.

Ashutosh Singh

Managing Editor

Dhyeya IAS

Send us your suggestions, comments, views and feedback for guiding us towards continuous improvement & enhancement of 'Perfect 7' on

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PREFACE

Dhyeya family feels honoured to present you 'Perfect 7' - a panacea for Current Affairs. 'Perfect7' is an outstanding compilation of current affairs topics as per the new pattern of Civil Service examination (CSE). It presents weekly analysis of information and issues (national and international) in the form of articles, news analysis, brain boosters, PIB highlights and graphical information, which helps to understand and retain the information comprehensively. Hence, 'Perfect 7' will build in-depth understanding of various issues in different facets.

'Perfect7' is our genuine effort to provide correct, concise and concrete information, which helps students to crack the civil service examination. This magazine is the result of the efforts of the eminent scholars and the experts from different fields.

'Perfect 7' is surely a force multiplier in your effort and plugs the loopholes in the preparation.

We believe in environment of continuous improvement and learning. Your constructive suggestions and comments are always welcome, which could guide us in further revision of this magazine.

Omveer Singh Chaudhary
Editor
Dhyeya IAS

Perfect 7

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by Mr. Qurban Ali

(Ex. Editor Rajya Sabha, TV) & by Team Dhyeya IAS
(Broadcasted on YouTube & Dhyeya-TV)

SEVEN IMPORTANT ISSUES

1. IMPROVING ACCESS TO AGRICULTURAL CREDIT : NEW PERSPECTIVES

Context

India's agrarian crisis has deepened in the past several years, contributing to the slowdown of the economy. Amongst the most crucial factors affecting the country's agricultural sector is financial inclusion. Over the years, India has attempted various measures to narrow the gap in financial inclusion for its farmers, yet the goal continues to elude the country.

Introduction

The trend of declining growth in the agricultural sector is not new. This is exhibited by the stark difference between the growth rates of the industry and the services sectors at about nine percent per annum for the 10th Five Year Plan (2002–07) on the one hand, and the agriculture sector at around 2.3 percent per annum, on the other. Even in the five years that followed, the per annum growth rate of agriculture stayed below the target rate of four percent.

The primary causes of this chronic agrarian crisis include the following: (1) heavy dependence on monsoons and the inability to mitigate uncertainty associated with the vagaries of nature due to, amongst others, poor irrigation facilities; (2) lack of access to suitable technology; (3) anomalies and inefficiencies in agricultural markets and the marketing ecosystems; and (4) lack of institutional credit at affordable rates. The last of these causes must be emphasised more than the others given its ability to contribute in tackling

the remaining causes. Revival of growth or even sustaining it requires falling back on the virtuous cycle triggered by investment; and as such private investment in agriculture demands financial inclusion of farmers.

It is widely recognised that there is a positive relationship between agricultural credit and agricultural growth. For a farmer, access to affordable institutional credit becomes crucial to start and sustain a good crop cycle based on quality inputs such as seeds, fertilisers, machinery and equipment, and sufficient supply of water and power. In an indirect manner, credit facilitates other important agricultural functions such as marketing, warehousing, storage and transportation, all of which are crucial to productivity. Agricultural credit plays an important role in providing essentials during adversity. To be able to absorb the shock of crop failure due to reasons such as drought and pest infestation or loss incurred due to price crash, the farmers must be financially equipped.

Financial Inclusion of Farmers in India: A Brief Profile

Access to institutional credit demands the ownership of assets and income that evaluates the creditworthiness of a potential borrower. Lack of such creditworthiness implies access exclusion. As per latest Agricultural census, 87 percent of agricultural households possess land which is less

than or equal to two hectares. This means that in accordance with the definition of the Reserve Bank of India, 87 percent farmers are either small or marginal. The size of income varies positively with the size of landholdings.

The primary sources of investment in agriculture are personally owned funds and those acquired from institutional sources. The reliance on non-institutional sources decreases with an increase in the size of land possessed.

The above analysis reveals that in order to increase investment in high-value agricultural assets, which drives agricultural productivity, farmers' household incomes must be increased and access to institutional credit, encouraged.

What Needs to be Done?

Before delving into various measure for improving the access of financial inclusion especially for small and marginal farmers, we need to change the paradigm under which the concept of financial inclusion is understood.

Towards a New Understanding of 'Financial Inclusion'

Based on the definitions proposed by the committees chaired by Dr. C. Rangarajan and Dr. Raghuram Rajan, financial inclusion is considered a welfare-oriented exercise that involves improving access and affordability of various financial products and services such as payment services, savings products, insurance products and inflation-protected pensions.

Viewing the problem of financial exclusion as a market failure with no market-oriented solutions is no longer true, given the emergence of several alternative financial models. Financial exclusion must also be clearly defined; an exercise that will highlight what needs to change and give insights for appropriate solutions. It refers to the barriers or limitations that prevent people from using financial services. It ranges from not having access to a bank account, to financial illiteracy. Several dimensions of barriers have been identified, including: physical exclusion, caused by the problems of travelling to avail services; access exclusion, caused by processes of risk assessment; condition exclusion, when the conditions attached to products are unsuitable or unacceptable to the consumers; price exclusion, when the price of products is unaffordable; marketing exclusion, where certain consumers are unaware of products due to marketing strategies that target others; and, self-exclusion, when people decide to exclude themselves voluntarily on the basis of past rejections or fear that they would be rejected.

Focus on the Ability to Repay rather than Collateral

The variables of financial inclusion—namely savings, investment and even credit—are determined to a significant degree by the size of landholdings and the level of income of agricultural households. In aspiring to double farmers' incomes and rescue those in a debt trap, India has to change this reality, especially as regards credit. Dependence of access to credit on the level of income and landholdings defeats the purpose of financial inclusion.

On average, approximately 50 percent of agricultural households have availed credit. Furthermore, will the 50 percent who are indebted be able to pay back the loans in time? Reeling under the burden of the debt trap has led several farmers to commit

suicide, the most horrific manifestation of the agrarian distress in the country.

There is a dire need to replace existing collateral requirements and assessments of creditworthiness with systems that measure repayment capacity on the basis of optimum utilisation of disbursed credit; an agricultural credit system based on the productive capacity of the borrower and not on securities as collateral. The success of such a credit system is deemed to rely upon the monitoring of credit utilisation so as to ensure appropriate and efficient utilisation of credit resources.

Leverage the 'Ruralisation' of the Manufacturing Sector

The strong reliance of agricultural households' incomes on casual wage labour needs to be replaced by formal earnings. This will help tackle the problems of irregularity of income and lack of reliable income documentation which adversely affect access to credit. India's industrialisation in recent times has become rural in nature. With organised large-scale manufacturing sector which accounts for about 80 percent of the total manufacturing output shifting to rural areas in order to leverage cheap land and labour, an avenue is opened to correct the spatial and regional disparities confronting the nation.

This trend of a ruralising manufacturing sector can be capitalised upon to generate greater formal employment in the rural areas so that the share of casual wage labour is reduced and that of formal income increases. Hence, the policymakers need to understand this trend and steer it according to their own development agenda. It must be ensured that deficiencies in infrastructure, power and connectivity should not impede this ruralisation phenomenon. Policymakers need to investigate the factors that can catalyse this process and identify measures that can create an enabling environment for the same.

Tap Impact Investments for Sustainable Access to Credit in India

Conventional economic theory presumes that the economic behaviour of the homo economicus, the rational economic man, has been driven solely by self-interest. Empirical evidence suggests the contrary. Humans are altruistic, they care about being fair, their choices are motivated by reciprocity, and they adhere to social norms.

To give an example in the Indian context, consider the Ujjwala scheme in association with which PM Narendra Modi appealed to the public to give up their LPG subsidy if they were in a position to do so. Standard economic theory would predict that no one would give up their subsidy. However, many did give it up. To be exact, since the launch of the scheme in 2016, 1.03 crore people have given up their subsidy (as of December 2018).

In the context of investments, those who are driven purely by the motive of higher returns are catered to by conventional investments. But what about those who wish to employ their investible resources to achieve some social outcomes besides earning a return? Impact investments are the answer. Impact investment lies between pure philanthropy and exclusively commercial investments.

Impact investments in India have gained a lot of traction and have a bright future as well. It has been received in the form of debt investment in co-operatives and food enterprises, equity investments in retailers and ag-tech firms that seek to achieve optimal utilisation of input factors and energy, efficient management of scarce resources etc. They are referred to as 'patient' capital, in that it is patient about the size of the return as well as the tenure after which this return can be expected. Given that impact investors are interested in the social impact (of course different investors have different preferences for social versus financial return), the returns can be tied to the realisation of the social

outcome being promised. For example, in the face of subsequent droughts, successive crop failures, the farmer would find it very difficult to pay back the loan. In such cases, the social impact could be freeing the farmer from the debt trap. The payment of the rate of return could be tied to this objective. As such, 'patient' capital relieves the farmer of the pressures surmounting as a result of accumulating debt burden.

Therefore, impact investment ecosystem needs to be further developed by initiating measures related to tax and regulatory regimes, measures for encouraging, incubating and nurturing social enterprises, transparency and accountability measures by formulating robust methods of measuring social impact, steps to secure investor protection and public trust.

Philanthropy as a Source of Affordable Credit

Charitable donations which have no obligation of returning the money attached to them provide greater flexibility in designing credit instruments for small and marginal farmers in India. A revolving fund can be created to park the donations, repaid loans and the interest paid on loans. Given evidence of arbitrage exploitation in the past, interest-free loans are not a good idea. Also, credit instruments can be sympathetic to farmers in deep debt crisis and waive off loans. However, to avoid wilful default driven by the expectation of loan waivers, such waivers cannot be blanket announcements and must be provided on a case by case basis. High-risk low-quality credit assets can be financed by philanthropic sources. Hence, these resources have the potential of extending credit access to the underserved.

Enrolling Fintech Players to Solve the Problems of Assessing Credit Worthiness of Small and Marginal Farmers

Conventional methods of assessing lending risks will almost always deem

small and marginal farmers as high-risk, low-quality credit assets. What worsens the matter is the lack of reliable income documentation and proper record of land titles. FarmDrive in Kenya has championed an interesting alternative for assessing creditworthiness of small landholding farmers. The enterprise has developed a farm management application which helps maintain appropriate records of farming activities. Along with this data, FarmDrive collects social, economic, agronomic, satellite and environmental data pertaining to the farmer and aggregates them by employing some machine learning algorithm which, in turn, generates a credit score.

With mobile phone penetration among agricultural households in India being as high as 89.1 percent, the prospects of replicating the FarmDrive model in the nation must be assessed. In India also firms like, farMart has disbursed INR 1.5 crore reaching about 2,500 farmers and is active in areas in Uttar Pradesh, namely Hardoi, Barabanki, Ayodhya and Raebareli. Given the agricultural market anomalies in India, farMart has introduced market linkage programmes which help farmers to get better rates for their produce and convert them into cash for repayment of loans.

There is a need to scale efforts such as farMart in which the government needs to play a decisive role. There is a need to build an enabling ecosystem for enterprises such as farMart to flourish. Tax concessions, investment flows and infrastructural requirements which form a part of such enabling ecosystem must be strengthened by policy intervention or even public private partnership (PPP) models. Here, the gains from collaboration between the government, impact investors and fintech players need to be emphasised.

Conclusion

Ensuring food security, practising climate smart agriculture and achieving

the broader goal of sustainable agriculture has a bearing upon the achievement of the Sustainable Development Goals agenda of 2030. Each of these objectives in turn depends crucially upon access to agricultural credit. This emphasises the importance of solving outstanding issues in the context of agricultural credit disbursement in India.

The agricultural crisis in India is deepening. It has in recent times pushed the economy in the direction of a slowdown. While it is equally true that the economy needs land and labour reforms, it needs to be innovative in solving longstanding problems like financial exclusion.

The perception towards the poor farmers in the country needs to change. Instead of looking at them as high-risk, low-quality credit assets, they must be viewed as an untapped credit market. The features of this market, more specifically, the character of the demand of this market, need to be understood to develop tailored products that cater effectively to this market.

An important reason why poor farmers in India are high-risk, low-quality assets is because they are not insulated from the vagaries of nature and do not have the wherewithal to reduce the risk of loan failure. Therefore, financial inclusion cannot stop at providing capital. It has to ensure that the probability of loan failure is minimised.

General Studies Paper- III

Topic: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Topic: Inclusive growth and issues arising from it.



2. DRONES' OPERATIONS AND REGULATIONS IN INDIA

Why in News?

Experiments to study the operations of commercial drones, which operate beyond the visual line of sight (BVLOS) range, would be carried out in January and aviation regulator DGCA will subsequently issue draft regulations for them, Civil Aviation Minister Hardeep Singh Puri said. The minister also said the Centre will start registering drones - BVLOS and others within a few weeks time.

Introduction

From the Internet to electric vehicles, we might be in a golden age of technology advancement. The world of unmanned aerial vehicles (UAVs) or drones is no exception. Towards the end of the twentieth century, flying RC aircrafts as a hobby grew substantially, while other non-military commercial applications were also explored by governments and corporations alike away from the public eye.

The drone space reached its inflection point in 2013 when Amazon announced that it would seek to experiment with drones to make deliveries. Since then, we have seen an explosion in the usage of drones and drone-based services in the retail and commercial space. Drones are being explored extensively across an array of industries, including, but not limited to, construction, real estate, e-commerce, agriculture, utilities and energy, financial services, and media and entertainment.

The drone space in India is catching up with that in other nations and gaining considerable momentum. According to 6Wresearch, the Indian UAV market is poised to grow at a CAGR of 18% during 2017–23 in terms of revenue. Data provided by the Stockholm International Peace

Research Institute (SIPRI) indicates that with 22.5% of the world's UAV imports, India tops the list of drone-importing nations. It is predicted that the market for commercial end-use of drones might supersede the military market by 2021, cumulatively hitting approximately 900 million USD.

Drones and their Regulations in India

The DGCA has defined remotely piloted aircraft (RPA) as an unmanned aircraft piloted from a remote pilot station. "The remotely piloted aircraft, its associated remote pilot station(s), command and control links and any other components forms a Remotely Piloted Aircraft System (RPAS). The DGCA has segregated drones into five different categories:

- i) Nano : Less than or equal to 250 grams.
- ii) Micro : From 250 grams to 2kg.
- iii) Small : From 2kg to 25kg.
- iv) Medium : From 25kg to 150kg.
- v) Large : Greater than 150kg.

All drones, other than in the nano category, shall apply to DGCA for import clearance and based on that Directorate General of Foreign Trade shall issue license for import of RPAs.

Drone Regulations 1.0

The Union Minister of Civil Aviation had announced the Drone Regulations 1.0, enable the safe, commercial usage of drones starting December 1, 2018. Drone Regulations 1.0 were intended to enable visual line-of-sight daytime-only and a maximum of 400 ft altitude operations. Air space has been partitioned into Red Zone (flying not permitted), Yellow Zone (controlled airspace), and Green Zone (automatic permission).

Key features Drone Regulations 2018:

- ◆ All RPAS except nano and those owned by NTRO, ARC and Central Intelligence Agencies are to be registered and issued with Unique Identification Number (UIN).
- ◆ Unmanned Aircraft Operator Permit (UAOP) shall be required for RPA operators except for nano RPAS operating below 50 ft., micro RPAS operating below 200 ft., and those owned by NTRO, ARC and Central Intelligence Agencies.
- ◆ RPAS to operate within visual line of sight (VLoS), during day time only, and upto maximum 400 ft. altitude.
- ◆ For flying in controlled Airspace, filing of flight plan and obtaining Air Defence Clearance (ADC) /Flight Information Centre (FIC) number shall be necessary.
- ◆ Minimum manufacturing standards and training requirements of Remote Pilots of small and above categories of RPAS have been specified in the regulation.
- ◆ The regulation defines "No Drone Zones" around airports; near international border, Vijay Chowk in Delhi; State Secretariat Complex in State Capitals, strategic locations/ vital and military installations; etc.

The policy also stipulates that RPAs shall be flown only by someone over 18 years of age, having passed 10th exam in English, and undergone ground/ practical training as approved by DGCA.

Drone Policy 2.0

The Union civil aviation ministry of India has made public the draft note for Drone policy 2.0 (under the chairmanship of the Minister of State Shri. Jayant Sinha), focusing majorly on Beyond Visual Line of Sight (BVLOS)

operations. The draft note talks about rules and regulations that will bind operations of drones in public spaces, especially on a commercial scale. It further noted that rules governing operations of drones will either be introduced as an amendment to the existing civil aviation regulations (CAR) 1.0 or it may also be introduced as a separate set of Civil Aviation Requirements notwithstanding the conditions laid down under CAR 1.0.

Some specific features of the new drone policy are:

- ◆ **New forms of air freight permitted:** Under Drone Policy 1.0, the potential to exploit drones for commercial purposes was limited, for instance, through Visual Line of Sight (VLOS) requirements. The draft Drone Policy 2.0 recommends expanding operations to beyond VLOS and beyond the current limit of 400 feet.
- ◆ **Mandates privacy by design:** The draft Drone Policy 2.0 mandates a 'privacy by design' standard. Drone Policy 1.0 does not stipulate privacy standards to be adhered to by RPA operators though they are under an obligation to not compromise the privacy of any "entity".
- ◆ **Proposes development of Infrastructure (Drone corridors, Droneports and UAS Traffic Management (UTM)):** The draft Drone Policy 2.0 conceives of drone corridors (segregated airspace demarcated by appropriate authorities) to keep commercial UAS operations out of non-segregated airspace in which manned aircraft operate. It is also proposed that UTM should be established which would be responsible for managing UAS induced traffic, especially in drone corridors.
- ◆ **Proposes maximum life cycle for drones to ensure airworthiness:**

The draft Drone Policy 2.0 proposes prescribing a maximum life cycle for each drone type and operators must apply for re-certification at the end of a drone's life cycle. This is over and above the requirements of equipment and maintenance under Drone Policy 1.0.

- ◆ **Recommends establishing a Drone Directorate:** The draft Drone Policy 2.0 recommends establishing a Drone Directorate within the Directorate General of Civil Aviation (DGCA) as the needs of the nascent drone industry may differ from those of the mature civil aviation industry.
- ◆ **Recognises Digital Sky Service Providers (DSPs):** The draft policy introduces new players in the DigitalSky ecosystem called DSPs, which would be public or private agencies registered in India, to provide enabling services to the UAS operators, DigitalSky Platform, relevant law enforcement authorities and/or any other stakeholder. One of the roles envisaged for DSPs is providing UTM services.
- ◆ **Permits 100% FDI:** The draft policy proposes 100% FDI under automatic route in UAS and RPAS-based commercial civil aviation services. Under Drone Policy 1.0, there is no mention of FDI.

Opportunities in Drone Industry

The global market for commercial use of drones is valued at over \$127 Bn. Indian drone manufacturers have all the ingredients to be at par with the world in developing top-of-the-line unmanned aerial vehicles (UAVs) but unfortunately, lack of friendly regulations has kept the industry away from a perfect take-off to date. Unlike the reported figure of 40, India currently has nearly 100 drone startups and the autonomous drone aviation industry has great potential ahead. The

standard assumption is that we are an agrarian economy so agriculture might pick up well. But we are talking about a technology that is going to impact every single industry — logistics, roads, railways, GIS (geographic information system), mapping, entertainment, sports and so on.

Challenges and Lacunas in Current Policy

Since Indian cities are growing vertically, having nano drones flying around without much regulation may lead to the invasion of privacy. They may also be misused for unethical activities such as corporate espionage, trespassing, surveillance, unauthorised photography and burglary. India has witnessed several instances of unidentified drone activity in recent years. Operations at the Indira Gandhi International Airport in Delhi were suspended for about 40 minutes on August 20, 2017, after a pilot spotted a drone nearby. There was a similar scare on July 25, 2018, and again on August 9.

Is the government equipped to deal with such emergencies, which could increase in number and frequency now that some drones can be operated without restriction?

Then, there is the question of privacy. The new policy explains the privacy protocol in a single line: "The remote pilot shall be liable to ensure that privacy norms of any entity are not compromised in any manner." It does not provide for a mechanism to check whether the operators are adhering to the norms. In fact, there's not enough clarity about what the norms are, to begin with.

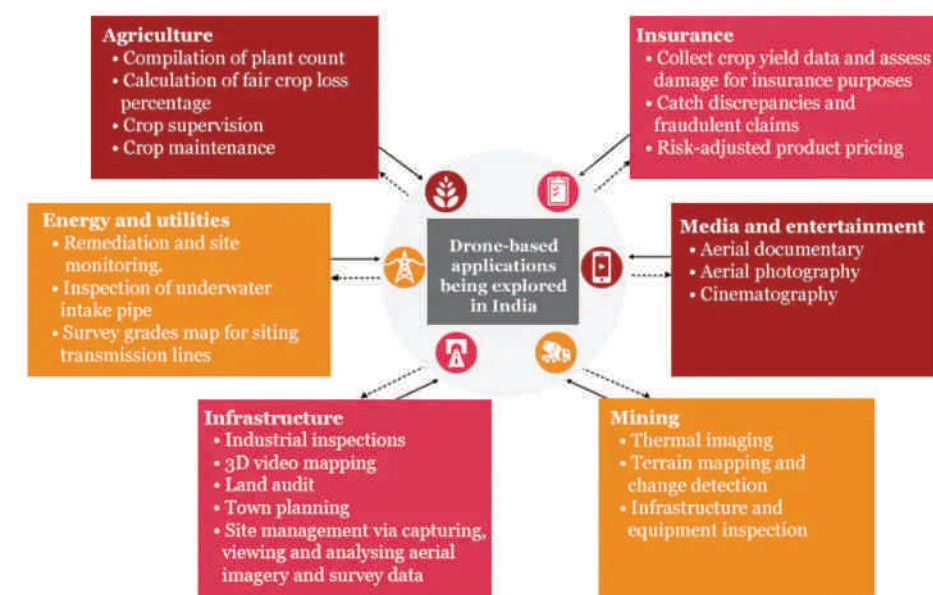
While the policy directs the operators to follow the regulatory checks, it does not outline an automated mechanism to guarantee safe and secure operation at low elevations. The policy also does not provide for a way to monitor how drones collect, use, store and share data.

Also, it does not account for the rapid advances in artificial intelligence that could lead to unexpected applications of drones. Further, it does not contain any arrangement for resolving the conflict between rival drones operations. Unless there is more clarity about the operational mechanism, vigilance, and privacy, the policy will remain feeble in terms of adaptability, usage and security, hampering its overall vision.

A more comprehensive system for approving applications, renewing permits, alerting the agencies concerned to deal with emergencies, and recording the history of a vehicle, can strengthen the policy's applications. This can help India use drones effectively for not just aerial mapping but also in disaster management, traffic control, policing, security, environmental studies, and agriculture.

Way Forward

At present, India not only lags behind in effective legislation, but also in creating institutional mechanisms that can formulate and enforce regulatory frameworks. There is a paucity of government talent that understands this paradigm shift. Unlike other



countries, India has a very stringent drone policy. Regulations have slowed down the industry as investors have been wary of infusing funds into the startups to date.

These shortfalls have to be addressed rapidly. What India needs now is not cautious over-regulation that stifles. We need to adopt a smart, adaptive regulatory approach that maximises the upside of technological innovation while clearly limiting the downside risks. The first step towards this is to have a vibrant public discourse on the pressing social, political and economic questions that these

technological shifts pose. Once the regulations open up, the skies open up.

General Studies Paper- II

Topic: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

General Studies Paper- III

Topic: Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.



3. OPENING UP THE COAL MINING SECTOR : AN ANALYSIS

Why in News?

The Union Cabinet has approved the promulgation of Mineral Laws (Amendment) Ordinance 2020 that will amend the Mines and Minerals (Development and Regulation) Act 1957 and Coal Mines (Special Provisions) Act 2015. The move is likely to create an efficient energy market and bring in more competition as well as reduce coal imports.

Introduction

Mining sector, being one of the core sector of economy, provides basic raw materials to many important industries like power generation (thermal), iron and steel, cement, petroleum and natural gas, petro-chemicals, fertilisers, precious & semi-precious metals/stones, electrical & electronics equipment, glass and ceramics etc. Minerals are valuable natural resources

being finite and non-renewable. They constitute the vital raw materials for many basic industries and are a major resource for development. The history of mineral extraction in India dates back to the days of the Harappan civilization.

The coal mining and coal-fired thermal power generation sectors are two of the core industries and together contribute approximately 10

per cent to India's Index of Industrial Production (IIP), affirming their importance to the economy. Further, India's logistics industry, sponge iron industry, aluminium industry among several others, as on date, depend on India's domestic coal industry. The sector employs about 500,000 people directly and, possibly, the same number indirectly. Hence, the importance of the coal sector in India, not just in terms of energy source for the country but also for the socio-economic role it plays, cannot be denied.

Type of Coal

Coal is a readily combustible, black or brownish-black sedimentary rock, predominantly made of carbon. It is formed over millions of years through geological pressure applied on plant remains buried under the soil. The heat value of coal reserves in our country (measured in Gross Calorific Value (GCV)), is unfortunately lower than that of international coal reserves.

1. **Anthracite:** It is the highest quality hard coal. It is found in parts of Jammu and Kashmir.
2. **Bituminous:** This coal has been buried deep and subjected to increased temperatures. It is the most popular coal in commercial use. Metallurgical coal is high grade bituminous coal which has a special value for smelting iron in blast furnaces.
3. **Lignite:** It is a low grade brown coal, which is soft with high moisture content. The lignite reserves are in Neyveli in Tamil Nadu. It is used for the generation of electricity.
4. **Peat:** Decaying plants in swamps produce peat, which has low carbon content and high moisture content resulting in low heating capacity.

Structure of Minerals and Mining Sector Governance

The Ministry of Mines (MoM), Government of India is responsible for the entire minerals and mining sector in the country that includes legislation, administration, policy formulation etc. in respect of all mines and minerals other than coal and lignite, natural gas and petroleum, but including offshore

Details of import of coal and products i.e. coke during the last six years is as under:
(Million tonnes)

Coal	2014-15	2015-16	2016-17	2017-18	2018-19 (Prov.)	2019-20* (Prov.)
Coking Coal	43.72	44.56	41.64	47.00	51.84	29.88
Non-Coking Coal	174.07	159.39	149.31	161.27	183.40	113.86
Total Coal Import	217.78	203.95	190.95	208.27	235.24	143.74
Coke	3.29	3.07	4.35	4.58	4.93	1.82

*Import upto October, 2019

minerals. In the case of atomic minerals and coal activities of the Ministry are limited to regional exploration. In India, the minerals are classified as minor minerals and major minerals. The power to frame policy and legislation relating to minor minerals is entirely delegated to the State Governments while policy and legislation relating to the major minerals is dealt by the MoM. The Ministry is responsible for the administration of the Mines and Minerals (Development and Regulation) Act, 1957 and rules made there under in respect of all mines and minerals other than coal, natural gas and petroleum.

The other related legislations governing this sector are:

The Offshore Areas Mineral (Development and Regulation) Act, 2002: To provide for development and regulation of mineral resource in the "offshore areas" (which means the territorial waters, continental shelf, exclusive economic zone and other maritime zones of India)

The Mines and Minerals (Development and Regulation) (MMDR) (Amendment) Act, 2015: MMDR Act, which governs the mineral sector, was overhauled by amendment in 2015, to bring in greater transparency, remove discretion and infuse Blasting at MCP greater ease of doing business.

Mineral Laws (Amendment) Ordinance 2020

It will regulate the mining sector in India and specifies the requirement for

obtaining and granting mining leases for mining operations. Currently, the act allows the government to auction coal and lignite mining licences only to companies engaged in iron and steel, power coal washing sectors. The union government is planning to open up the coal sector with a large offering of more than 200 blocks for commercial coal mining in the next five years.

- ◆ The ordinance will amend Section 11A of the act and open up coal mining to all firms with offices registered in India and also does away with the captive end-use-criteria.
- ◆ Amendment will put an end to the captive coal block auctions in the future, and open the Indian coal sector completely for commercial mining for all local and global firms.
- ◆ This amendment is expected to ensure a smooth transition to new successful bidders for the coal mines whose leases are expiring in 2020.
- ◆ This has the potential to produce at least 400 million tonnes of coal at peak capacity. With this, the government hopes to stop coal imports by power plants by 2024.

Analysing the Legislation

The Centre's decision to liberalise norms for entry into coal mining and relax regulations on mining and selling coal in the country is significant in many respects. Amendments to two legacy Acts through the Mineral Laws (Amendment) Ordinance 2020 cleared by the Cabinet will free the sector

from restrictions that were inhibiting its development. This will open up the coal mining sector completely, enabling anyone with finances and expertise to bid for blocks and sell the coal freely to any buyer of their choice.

Until now there were restrictions on who could bid for coal mines only those in power, iron and steel and coal washery business could bid for mines — and the bidders needed prior experience of mining in India. This effectively limited the potential bidders to a select circle of players and thus limited the value that the government could extract from the bidding.

While the state-owned Coal India Limited (CIL) is tasked with producing 1 billion tonnes of coal by 2023-24 and this deadline was posted after it became clear that it would not be able to meet the earlier deadline—there is little to suggest that it will achieve the target. The FY20 target for CIL was 660 million tonnes, and it is projected to fall significantly short of it. Meanwhile, though the coal auction policy was finalised in 2015, of the 204 blocks that were freed up for auction after Supreme Court cancelled their allocation in 2014, only 29 have been auctioned so far, thanks to the end-use restriction meaning the coal had to be used for the captive purpose only and couldn't be traded in the market. It has inhibited the development of a domestic market for coal. The ordinance essentially democratises the coal industry and makes it attractive for merchant mining companies, including multinationals such as BHP and Rio Tinto, to look at India.

Scrapping the condition that a company must have prior mining experience in India to bid for the blocks also means the pool of bidders has become much wider—in the new round, the government has proposed to put up 40 coal blocks for auction. The

government had already allowed 100% FDI in commercial coal mining under the automatic route, the latest move will signal that it truly means business.

As per the present Import policy, coal can be freely imported (under Open General Licence) by the consumers themselves considering their needs based on their commercial prudence. Coking Coal is being imported by Steel Authority of India Limited (SAIL) and other Steel manufacturing units mainly to bridge the gap between the requirement and indigenous availability and to improve the quality. Coal based power plants, cement plants, captive power plants, sponge iron plants, industrial consumers and coal traders are importing non-coking coal. The move was overdue considering that the country spent a huge 1,71,000 crore in coal imports last year to buy 235 million tonnes; of that, 100 million tonnes was not substitutable, as the grade was not available in India, but the balance 135 million tonnes could have been substituted by domestic production had it been available.

Coal Reserves in India

India has the fifth largest coal reserves in the world, and is the fourth largest producer of coal in the world. Coal deposits are primarily found in eastern and south-central India. Jharkhand, Odisha, Chhattisgarh, West Bengal, Madhya Pradesh, Telangana and Maharashtra accounted for 98.26% of the total known coal reserves in India. As on 31 March 2018, Jharkhand and Odisha had the largest coal deposits of 26.06% and 24.86% respectively. The estimated reserves of coal were 319.04 billion tonnes, an addition of 3.88 billion tonnes over the last year in corresponding period.

Challenge for Coal India

While broadening the base of those who can partake in the auctions is expected to fetch better prices, ease the transition from the outgoing to new leaseholder, and result in higher coal production, it creates a challenge for Coal India.

- ◆ The government-owned Coal India is the world's largest coal miner, and together with Singareni Collieries Company, accounted for 91.6 per cent of the total coal produced in the country during FY18.
- ◆ After the MMDR amendment comes into force, Coal India is expected to face competition from several mining giants like Glencore Plc, BHP Group, Anglo American PLC and Peabody Energy Corp.

Opportunities

- ◆ The opening up of coal mining effectively ends Coal India's (CIL) monopoly status. The private participation will bring efficiency to the coal sector by moving from an era of monopoly to competition.
- ◆ Large investment in mining will create jobs and set off demand in critical sectors such as mining equipment and heavy commercial vehicles.
- ◆ The country may also benefit from infusion of sophisticated mining technology, especially for underground mines, if multinationals decide to invest.
- ◆ Besides government potentially earning more revenue due to higher competition and a boost in coal production, the involvement of new private mining companies will help India get access to sophisticated global mining tech.
- ◆ As the ordinance also does away with the captive end-use criteria, it gives the mining companies freedom to "do what they want with the coal" by eliminating restrictions on sales, thus making the proposition of owning a coal mine more attractive.
- ◆ It is also expected to create an efficient energy market in the country and ultimately help take a decisive step towards zero coal imports.

Way Forward

Given the ramifications for a number of coal-using industries-from power to iron&steel-the latest move of the government should provide a big boost to the economy if auctions go as planned. For that, the government must stare down the blackmail by the CIL worker-unions, who have been agitating against allowing commercial mining as that would end CIL monopoly. Improved energy efficiency and a cut in the costly imports will go a long way in reviving key sectors. Besides, if the auctions are successful, it will add new

vigour to the demand for exploration-just 10% of India's prospective geography, compared to Australia's 95%, has been explored and mining happens in a much smaller 1.5%. NITI Aayog estimates that merely doubling of the current area being explored will add nearly 5 million jobs.

The government must also rethink the high royalties it charges coal mining if the latest move is to bear fruit. Ideally, given even non-oil mineral imports account for 30% of India's total import bill-55% of oil is included-the government also needs to rethink

levies on all minerals, and ensure environmental and other clearances are given on time.

General Studies Paper- II

Topic: Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

General Studies Paper- III

Topic: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.



4. STATE ENERGY EFFICIENCY INDEX 2019 : AN OVERVIEW

Why in News?

The government of India has released the 'State Energy Efficiency Index 2019', which tracks the progress of Energy Efficiency (EE) initiatives in 36 states and Union Territories (UTs) based on 97 significant indicators.

Introduction

India is marching on the path of energy transition, shifting away from fossil fuels and focusing on decentralized energy resources. EE will be central to this transition process as it helps to make the transition faster and more economical. Recognizing the importance of EE towards India's energy security, climate security, and overall development imperatives, the government of India has made excellent strides in EE over the last 18 years since the enactment of the ground-breaking Energy Conservation Act in 2001. This Act was instrumental in the formation of the Bureau of Energy Efficiency (BEE) in 2002 and the State Designated Agencies (SDAs) in the states. It also put in place the much-needed institutional

framework for the formulation and implementation of energy efficiency policies and programs.

Since 2002, BEE has developed norms and mandates to not only set up minimum energy performance requirements but also to encourage voluntary adoption of higher energy efficiency standards in different demand sectors. This approach is manifested in the 'Standards and Labelling Scheme' for appliances and equipment, 'Energy Conservation Building Code' (ECBC) for commercial buildings, the newly launched 'EcoNiwas Samhita' for energy conservation in residential buildings and 'Perform Achieve and Trade' (PAT) for large industries and hotels that BEE has been running successfully. Through capacity-building programs, financing programs and awards programs, BEE is also creating a demand-pull by addressing barriers related to awareness and financing.

The achievement of India's goals for EE hinges as much on the success of energy efficiency programmes in states, as in nationwide programmes.

However, an outcome-based framework to evaluate states' progress on EE achievements was not developed until 2018 when the State Energy Efficiency Preparedness Index 2018 was developed for the first time. In 2018, 29 states and the National Capital Territory of Delhi were assessed on 63 indicators.

Initiatives towards EE

2019 saw the launch of the India Cooling Action Plan (ICAP) and the Bureau of Energy Efficiency's (BEE's) draft strategy plan for accelerating energy efficiency in India – UNNATEE (Unlocking NATIONAL Energy Efficiency potential). ICAP aims to reduce cooling demand across sectors by 20% to 25% by 2037-38 and cooling energy requirements by 25% to 40% within the same period. UNNATEE provides a roadmap for meeting India's goals on climate change through energy efficiency. Both plans are a call to action to accelerate the implementation of energy efficiency initiatives to reduce energy demand and energy intensity in all sectors, while still powering growth in India. Energy Efficiency (EE) is the cleanest, fastest and cheapest way to achieve India's sustainable development goals - 7 (Affordable and Clean Energy), 12 (Responsible Consumption and Production) and 13 (Climate Action).

About State Energy Efficiency Index 2019

The State Energy Efficiency Index has been developed by Alliance for an Energy Efficient Economy (AEEE) under the leadership and guidance of the BEE. The primary objectives of the Index are to :

- ◆ Help drive EE policies and program implementation at the state and local level
- ◆ Highlight best practices and encourage healthy competition among states
- ◆ Track progress in managing the states' and India's energy footprint
- ◆ Set a baseline for EE efforts to date and provide a foundation to set state-specific EE targets
- ◆ Institutionalize data capture and monitoring of EE activities by states, especially by SDAs .

The Index 2019 comprises 97 qualitative, quantitative, and outcome-based indicators to monitor the real progress made in the implementation of policies, programs and projects. The indicators are demand sector specific covering 5 major energy demand sectors – Buildings, Industry, Municipalities, Transport, Agriculture and Distribution Companies (DISCOMs). In addition to the five sectors, the indicators for this year also cover initiatives that have a cross-sector impact. The 97 indicators pertain to categories, namely Policies and Regulations, Financing Mechanism, Institutional Capacity, Adoption of EE measures, and Energy savings achieved. States and UTs have been categorised as 'Front Runner', 'Achiever', 'Contender' and 'Aspirant'.

Key Findings

- ◆ The top performing states for State EE Index 2019, Haryana, Kerala and Karnataka, are in the 'Achiever' category. Since there isn't any 'Front runner' state, it can

be inferred that a lot more can be done at state level to realise energy savings from energy efficiency.

- ◆ Regarding Energy Conservation Building Code (ECBC), 2017, 6 states have amended the code to suit regional and local conditions and have notified the code in the state's official gazette. Four states have incorporated ECBC, 2017 in municipal building bye-laws. Nine states have started making some progress on adoption of ECO Niwas Samhita 2018- Energy Conservation Building Code for Residential Buildings.
- ◆ In the industrial sector, the focus for energy efficiency in the MSME segment is still very low, despite several national programmes for this sector.
- ◆ Efforts in municipal energy efficiency are still largely driven with the help of EESL. On a positive note, 11 states have installed centralised control and monitoring systems for street lighting in some municipalities within the state.
- ◆ In the transport sector, 6 states have released Electric Vehicle (EV) or e-mobility policies, and 4 have published draft EV policies. A few states have started incorporating electric vehicles in public transportation, primarily buses and e-autos or e-rickshaws.
- ◆ Twenty-four (24) states have implemented Time of Day (ToD) tariffs for Industrial and/or Commercial consumers, whereas 5 states have ToD tariffs for residential consumers as well.

Analysis of Sectors

States have a vital role in India's energy efficiency policy implementation and in meeting state-specific goals on sustainable development in the most energy efficient way. A department/

agency has been designated as the State Designated Agency (SDA) within each state. All the SDAs have been empowered by the Energy Conservation Act, 2001 (EC Act) to co-ordinate, regulate and enforce the provisions of the EC Act in states. SDAs also play a vital role in promoting energy efficiency among energy consumers in all sectors of the state – agriculture, buildings, industries, municipalities and transport, as well as in power generation, transmission and distribution.

Buildings

The State Energy Efficiency Index in 2019 has 23 indicators to capture states' initiatives and progress in energy efficiency in buildings as this sector accounts for 33% of total electricity consumption in India. The indicators cover various aspects such as 'Energy Conservation Building Code-2017' (ECBC-2017), 'ECO Niwas Samhita 2018', programmes and incentives for ECBC-compliant construction and adoption of energy efficient appliances, institutional capacity for supporting energy efficiency in buildings, energy savings and reduction in energy intensity.

The Ministry of Power and the BEE have recognized energy efficiency in buildings to be critical for India's National Action Plan on Climate Change and global climate commitments like India's Nationally Determined Contribution. By focusing on the vast scope for energy efficiency in the building sector, states can significantly transform the building efficiency landscape and contribute to the Nationally Determined Contribution on climate change. States and local governments play a crucial role in the implementation and enforcement of energy-efficient measures and programmes in the building sector as it requires coordinated efforts of multiple

stakeholders at different levels. The top-performing states in the building sector are Haryana, Kerala, Telangana and Karnataka.

Industry

The State EE Index 2019 has 17 indicators for Energy Efficiency in the industrial sector. New indicators introduced this year include three indicators for energy efficiency in MSME clusters, with states given the option to identify one or more MSME clusters which the state is focusing on for energy efficiency programmes. Other new indicators include one for the adoption of ISO 50001 in industry and one for the performance of the state in PAT Cycle II. The top performers are Kerala, Haryana, Karnataka, and Tamil Nadu.

Municipalities

The State EE Index 2019 has 16 indicators to measure the performance of EE municipal services, including street lighting, water pumping, and sewage treatment. The top performing states are Telangana, Karnataka, Punjab and Haryana, all of these having scored in most indicator categories. Overall, states' performance in implementing energy efficiency in municipalities is low.

Transport

The Transport sector comprises 13 indicators as compared to 5 indicators in 2018. The indicators are related to initiatives on electric mobility, energy efficiency of State Road Transport Corporations (SRTC) and concerning the overall energy efficiency in the sector. Specifically, the indicators are intended to cover the holistic approach towards energy efficiency in public transportation, government business, and private transportation.

The top performing states in the transport sector are Tamil Nadu, Uttar

Pradesh, Kerala, Andhra Pradesh, Maharashtra and Karnataka. These states have performed well on various state initiatives for electric mobility and energy efficiency measures in State Road Transport Corporations and government business.

Adoption of electric vehicles in public transportation by the states is at an incipient stage. States like Gujarat, Himachal Pradesh, Kerala, Tamil Nadu, Telangana and Uttar Pradesh, have incorporated Electric buses in their road transport fleet as a pilot initiative. The pioneer states of EV policy in India like Karnataka and Maharashtra have significantly lower penetration of electric vehicles.

Agriculture and Discoms

The 'Agriculture & DISCOMs' sector comprises 19 indicators related to Demand Side Management (DSM) regulations, utility-driven Agriculture and non-Agriculture DSM programs, savings through DSM programs and Transmission and Distribution (T&D) losses in the State. Against the total score of 15 for this category, the maximum score of 9.5 was achieved by Haryana and Punjab across all groups. The other top performing states are Karnataka and Delhi.

Cross Sector

The State Energy Efficiency Index comprises of 9 cross sector indicators including the State Energy Conservation Fund (SECF) and awareness programmes on energy efficiency as part of BEE's agenda to strengthen SDAs. The maximum score of 5 was achieved by Kerala and Odisha. The other top performing states are Andhra Pradesh, Haryana, Madhya Pradesh and Telangana. While Karnataka and Punjab have a relatively higher score in other sectors, they haven't managed to score high in this category.

Recommendations

States EE Index 2019 shows that majority of the initiatives taken by states are related to Policies and Regulations. Most of the first-generation energy efficiency policies prepared by BEE under programmes on Standards & Labelling (S&L), ECBC, PAT, etc. are understood by states. However, states should now focus on ensuring complete compliance to realize actual savings. Based on the analysis of responses submitted by states this year, a three-point agenda is suggested for consideration by state agencies:

Proactive role by states in policy formulation and implementation: It is observed that states have confined their role towards customization of national policies and legislative approval. Now states must take an active authority to exercise powers under the EC Act and start formulating supporting policies and implementation rules to shift the focus from "policies in place" to "policies successfully implemented".

Strengthening the mechanism for data capture, management and public availability of data: Availability of updated and correct data has been the Achilles heel for states. The SDA is the competent authority within the state for all matters related to energy efficiency. For this year's Index, SDAs proactively contacted various state departments to gather data. However, SDAs should significantly enhance their engagement with state departments, DISCOMs and private sector organisations beyond one-time data collection. Building a robust system for demand side energy consumption data collection and analysis at local and state level will also contribute significantly towards a national Energy Data Management System.

Enhancing the credibility of EE schemes: Ensuring the integrity of

programs that have direct or indirect linkage with common consumers is an important pillar of energy efficiency market transformation. To deal with this challenge, states must demonstrate an approach which includes enforcement and compliance checks. Rules related to mandatory energy audits, mandatory sale and purchase of BEE star labelled appliances will not be effective unless an inspection process is established and strengthened. States must also

make independent monitoring and verification of savings integral to all EE policies and programs.

Way Forward

States must make independent monitoring and verification of savings integral to all EE policies and programs. Energy audit leads to an estimate of the savings potential contingent to use of energy savings measures and onsite usage conditions. Post-

implementation audit determines the actual savings. Hence, a digression from the conventional wisdom of "Potential equals Savings" is required for a true measure of actual energy savings achieved.

General Studies Paper- III

Topic: Infrastructure: Energy, Ports, Roads, Airports, Railways etc.



5. COMBATING DENGUE : REQUIRES HOLISTIC APPROACH

Why in News?

An article recently published in the New England Journal of Medicine revealed that new tetravalent vaccine confers about 80% protection to children vaccinated between 4 and 16 years of age without any major side effects.

Introduction

Dengue, mosquito borne viral infection with potentially lethal consequences, has been declared one of the most significant and prevalent arthropod-borne communicable diseases. Dengue has been declared prevalent in more than 100 tropical and subtropical countries, accountable for accelerating trends of global morbidity and mortality. Responsible for an average of 50 million annual infections, dengue is estimated to pose a major health threat to more than 2.5 billion individuals. Its gradual post-World War II re-emergence was primarily characterized by rapid geographical spread, increasing incidence rates, and regular outbreaks, assumed to be causally related to enhanced shipping trade, rising population numbers, and urbanization. Clinical observations have identified a broad range of disease manifestations, ranging from mild asymptomatic flu-like symptoms to severe and often fatal complications,

also known as dengue haemorrhagic fever and dengue shock syndrome.

What is Dengue?

Dengue is essentially a tropical disease that occurs in the countries around the Equator; hot weather and intermittent rainfall favour the sustenance of *Aedes aegypti* — the vector transmitting the dengue virus — and *Aedes albopictus*, a minor contributor. *Aedes* eggs can remain dormant for more than a year and will hatch once they come in contact with water. Urbanisation, poor town planning, and improper sanitation are the major risk factors for the multiplication of such mosquitoes. *Aedes* mosquitoes cannot fly beyond a hundred metres. Hence, keeping the ambience clean can help prevent their breeding. Further, these mosquitoes bite during the daytime, so keeping the windows shut in the day hours is also useful.

Key Facts:

- ◆ The virus responsible for causing dengue, is called dengue virus (DENV). There are four types of DENV serotypes (DENV1, DENV2, DENV3 and DENV4), meaning that it is possible to be infected four times.

- ◆ The global incidence of dengue has grown dramatically in recent decades. About half of the world's population is now at risk.
- ◆ Severe dengue is a leading cause of serious illness and death among children and adults in some Asian and Latin American countries. It requires management by medical professionals in hospitals.
- ◆ There is no specific treatment for dengue/severe dengue. Early detection of disease progression associated with severe dengue, and access to proper medical care lowers fatality rates of severe dengue to below 1%.
- ◆ Dengue is found in tropical and subtropical climates worldwide, mostly in urban and semi-urban areas. Even rural areas are beginning to be affected in some countries.
- ◆ The global incidence of dengue has grown dramatically in recent decades. About half of the world's population is now at risk. There are an estimated 390 million infections each year.
- ◆ Dengue prevention and control depends on effective vector control measures. Sustained community involvement can improve vector control efforts substantially.

- ◆ The main mosquito vectors of dengue breeds in and around human habitation and their eggs can remain dry for months and hatch when in contact with water.

Magnitude of the Problem in India

Scientific studies have shown an epidemiological shift in dengue viruses, which means changes in the virus's geographical incidence and distribution, and have indicated that climate change might be a reason for increase in dengue cases. Earlier, dengue cases used to surface only around monsoon, but with climate change and other environmental factors, dengue cases occurrence is also changing.

The study stated that India's mean temperature rose by more than 0.5 degree Celsius between 1960 and 2009 due to several environmental factors, including climate change. The researchers studied the temperatures in different seasons and found that an increase in temperature led to a shorter incubation period for the dengue virus.

Further, a study published by The Lancet in July 2017 identified climate change as a potential factor for the rise in dengue cases. Between 2010 and 2016, India has recorded a 356% increase in the number of dengue cases.

Toward a New Vaccine

The advent of a new tetravalent vaccine against the dengue virus has thrown new light into the evidence-based management of dengue. It was a double-blind, placebo-controlled, randomised, multi-centre trial which included 20,017 participants from the dengue-endemic countries. However, apart from promoting the use of the vaccine, gaining control over dengue will also require a holistic approach that has to include within its ambit vector control and proper case management.

Issue and Challenges

India, home to 1.3 billion, constitutes a significant contributor to the global communicable disease burden. Although India's economic and infrastructural development has been enormous, large health and social inequalities, marked by disproportionate disparities between extreme poverty and wealth, remain inadequately addressed. Dengue's emergence has exposed Indian public health authorities to severe public health challenges. In 2015, the Ministry of Health and Family Welfare (MoHFW) reported approximately 21,000 new dengue infections. Research suggests that the number of dengue cases is underestimated.

Dengue cases are often under-reported due to political reasons and also to avoid spreading panic among the common people. Further, there is a lack of coordination between the local bodies and health departments in the delivery of public health measures.

Also the number of skilled workers available for preventive measures is low; many posts in government departments remain vacant despite there being a dire public health need. Due to this deficiency of manpower, active surveillance is not being done in India.

Management of Dengue

Many source reduction activities can be undertaken, including preventing water stagnation and using chemical larvicides and adulticides. These chemicals need to be applied in periodic cycles to kill the larvae that remain even after the first spray.

Moreover, epidemiological measures are essential in the management of any communicable disease. Singapore uses one successful model of mapping and analysing data on dengue, using Geographical

Information System (GIS). This involves mapping the streets with dengue cases for vector densities.

Fluid management is the cornerstone in the management of severe diseases like dengue hemorrhagic fever and dengue shock syndrome. Here, the role of platelet depletion in exacerbating the condition of a patient is overemphasised even by many medical personnel.

Alternative Medicine Drugs

Despite the adequate and well-formed guidelines for the management of dengue cases by the WHO and the Indian government, the usage of complementary medicines like Nilavembu kudineer (a Siddha medicine) and papaya leaf extract are rampant among the people. Nilavembu sooranam, which reportedly contains about nine different substances, has been widely promoted for use to treat dengue fever despite the safety of and complex interactions among its different constituents not having been tested.

The efficacy of Nilavembu kudineer in the management of several other diseases is based on very primitive forms of research like case reports, in-vitro studies, and animal studies. There are case reports where *Andrographis paniculata*, an active constituent of Nilavembu sooranam, showed anti-fertility effects in animal models, causing abortion. Even meta-analysis of various studies has shown that there is no credible evidence for the use of papaya extract in dengue fever. However, for unknown reasons, even some pharmaceutical companies are being allowed to market papaya extract pills.

Modern medicine is not against any complementary medicine; when such a medicine is approved after rigorous testing, modern medicine will absorb it, and there are many examples of that. However, in the

absence of evidence, the efficacy of such medicines remains in the realm of belief instead of science.

Government Initiatives

Government of India has taken various steps for prevention and control of Dengue and Chikungunya in the country as detailed below:

- ◆ Developed a Long Term Action Plan for Prevention and Control of Dengue in the country and sent to the State(s) on January 2007 for implementation.
- ◆ National guidelines for clinical management of Dengue Fever, Dengue Hemorrhagic Fever, Dengue Shock Syndrome has been sent to the State(s) April 2007 for circulation in all hospitals.
- ◆ Established Sentinel Surveillance Hospitals with laboratory support for augmentation of diagnostic facility for Dengue in endemic State(s) in 2007 which has been increased to 170 in 2009. All these are linked with 13 Apex Referral Laboratories with advanced diagnostic facilities for back up support.
- ◆ To maintain the uniformity and standard of diagnostics in these laboratories IgM MAC ELISA test kits are provided through National Institute of Virology (NIV), Pune. Cost is borne by the government.
- ◆ Diagnosis of Dengue and Chikungunya is provided to the community at free of cost.
- ◆ Since 2007, every year in the 1st quarter Directorate of NVBDCP prepare the tentative allocation of test kits based on the previous epidemiological situation of Dengue and Chikungunya in the states and communicate to both NIV, Pune and States.



- ◆ Kits are supplied by NIV, Pune on receipt of requirement from the respective states.
- ◆ Buffer stocks are also maintained to meet any exigency.
- ◆ State wise allocation of Dengue and Chikungunya during 2010 was communicated to the states on 15th February 2010.
- ◆ Ensuring the diagnostic facility and availability of kits is the responsibility of the respective State Programme Officers, NVBDCP.

National Vector Borne Diseases Control Programme (NVBDCP)

National Vector Borne Disease Control Programme (NVBDCP) is an umbrella programme for prevention and control of vector borne diseases. It is subsumed under National Health Mission. It is responsible for the prevention and control of vector borne diseases i.e. Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis and Chikungunya in India.

Conclusion

Dengue in India has established its roots. Now it is endemic and almost

hyperendemic in our population. The subcontinent has been declared highly endemic, causing regular outbreaks of all serotypes across the country. With urban environments being the preferred habitat of dengue vectors, India's rapidly expanding cities had a considerable impact on the viruses' spread. The country's public healthcare system is structured across various, hierarchically organized administrative levels. Public health initiatives and healthcare services operate on national, state, district, and local scales, creating a highly complex administrative web. The need of the hour is to take a holistic approach involving efficient vector control and proper case management apart from vaccination.

General Studies Paper- II

Topic: Issues relating to development and management of Social Sector/ Services relating to Health, Education, Human Resources.

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6. SIX FOCUSED AREAS FOR INDIA'S FOREIGN POLICY IN 2020

Context

As the international community will stumble into the third decade of this century amidst much uncertainty and anxiety about the future; a new, fractured global order is upon us. Recognizing the challenges India's response must evolve accordingly.

Introduction

The world is not just different; the very structure of the international order is undergoing a profound transformation. American nationalism, the rise of China, the saga of Brexit and the rebalancing of the global economy are often cited as the more dramatic examples of change. In fact, the phenomenon is far more pervasive than just these illustrations. We have seen the return of old empires like Russia, Iran or Turkey. The Middle East is in ferment, even by its exceptionally volatile standards. The centrality of ASEAN to Asia is not what it is used to be. Demographic and economic trends in Africa are giving that continent a greater salience. South America is again a battleground for ideas. But we are also talking beyond geographies and orthodox politics. What defines power and determines national standing is also no longer the same. Technology, connectivity and trade are at the heart of new contestations. In a more constrained and interdependent world, competition has to be pursued perforce more intelligently. The global commons is also more in disputation as multilateralism weakens. Even climate change is a factor, contributing to geopolitics amongst others by the opening of an Arctic passage. In short, change is upon us as never before.

In these challenging times, it cannot be overstressed how important it is for New Delhi to rethink the paradigms that are challenging our

world order. Today, the need is for India's reflexive and discrete responses to these challenges to evolve into the creation of a coalition of like-minded leaders who will use their individual and institutional capacities to respond to the demands of global governance in the 21st century.

Indian Foreign Policy: Politico-Economic Critique

If the economy is the currency that powers international relations, India needs to retune the vectors of engagements. If GDP is the pivotal numeric of global influence, India should be working closer to the fulcrum to get better leverage. And if India being open for business for the world is the aspiration of nations, India must ensure that the pipelines of discourse must include open self-interest at its heart.

The 2020s will see India become the world's third-largest economy, after the US and China. Even at a slower nominal growth rate of 10% per annum, India will cross Germany in five years and Japan in seven, closing the decade at \$7 trillion. At 8% nominal growth rate, it will become the third-largest economy by end of the decade. Even though the nominal GDP growth in the last quarter stood at a poor 6.1%, this is a short-term blip that will change going forward, partly because of a global revival and partly due to domestic changes.

A high and rising GDP can and does change international conversations and diplomatic calculations. In 1998, on a GDP of \$421 billion, when India conducted five nuclear test explosions at Pokhran, the US and Japan imposed economic sanctions, China condemned it, while the UK, France and Russia held back. Seven years later, the same US signed the India-US Civil Nuclear

Agreement in 2005, when India's GDP had more than doubled to \$940 billion, and the same Japan supported it, along with the UK, France, Russia and Germany. The sullen China, of course, condemned it.

On a GDP of \$2.7 trillion, when the Indian Parliament abrogated Article 370, the sole voice that condemned it in the United Nations Security Council was China's. The outcome: China stood isolated, as the US, the UK, France and Russia said it was an internal matter of India. Even Islamic nations – the relevant ones such as Saudi Arabia and UAE, not the insignificant ones like Turkey and Malaysia – steered clear of needling India.

India's improving economic performance had opened up new vistas for cooperation with major powers and neighbours. Now the economy's subdued performance and domestic political issues have created new challenges for Indian foreign policy. To add to these external concerns, the new approach to relations with India adopted by both President Donald Trump and President Xi Jinping has created a more challenging external environment.

A high GDP is a necessary condition for global influence. But it is not a sufficient condition. To bring sufficiency, India's foreign policy, while leaning on it, must power India's economic policy. A rising economy – the current slowdown is a blip that will get corrected either by the incumbent government or by political change that brings a new one – will create its own pathways. Given that India is a democracy, those pathways will be turbulent, no different from what other major democracies, from the US and the UK to Japan and Germany, are facing today.

India Foreign Policy and Challenges Toward 2020

As India enters the 2020s with this economic trajectory ahead, there are six areas it must work on over the decade with a greater focus. All relationships are important, but these super six will hog diplomatic attention in the decade ahead. Within these geographies, India has to negotiate several complexities simultaneously – trade and nationalism, technology and regulation, energy and security. Above all, India must offer public goods to the world, while ending poverty at home.

India and US: India-US ties extend wide and deep, from trade and economy to security and defence. Not always has the US been a dependable partner. But in the foreseeable future, the US relationship is here to stay.

Due to Chinese hegemony in the region or markets, this relationship is crucial for both partners. It will not be always harmonious. The US will want India to open markets; India will seek more spaces for Indians working in the US. The US will want its Boeings to fly India; India will seek balance with Airbus as well. What will strengthen the India-US relationship at the core will be business to business initiatives and citizen to citizen diaspora. These, the establishment must nurture.

India and China: The biggest policy challenge in this decade would be to keep Chinese companies out of India's 5G rollout. Managing the border will be another challenge. As its terrorist proxy, Pakistan is more or less under control, after the Balakot attack. As a neighbour that shows open and uncontrollable rage against India even as it profits from an adverse trade balance against it, China will be the relationship that will extract the most from India's diplomats and domestic policymakers.

For now, there is no constituency that has a positive view about China in

India. But if China reforms its anti-India stance, we hope this will change by the end of the decade.

Dealing Russia and France

These two members of the UNSC have been consistent in their relationship with India. Both have supported India in most decisions recently, defying China. Across the span of history, Russia has provided defence equipment to India, France is joining now. Their support has come within the confines of competitive forces from the US on the one side and India diversifying its defence procurement on the other. Outside this strategic relationship, there is scope to widen and deepen them.

With Russia, a deeper engagement on the energy front is possible, if we can design gas routes. With France, following the Framework Agreement on Civil Nuclear Cooperation, this decade should see a greater push to build nuclear power plants.

Neighbourhood: Nepal, Bangladesh and Sri Lanka need attention

Given that Bhutan, Maldives and Myanmar are on course, the coming decade should see India step out and repair relationships with Nepal, Bangladesh and Sri Lanka. Being the bigger economy and a more influential nation, India must rethink these relationships and rebuild new bridges over water that has flown. We have needlessly allowed China to fill up the vacuum left behind by our indifference. A little diplomatic humility will go a long way in restoring past goodwill.

For none of these countries is it an either-or with India-China. Both can coexist. But if China has more economic and military muscle, India is no lightweight. Besides, what India lacks in muscle, it can more than make up with mind – Aadhaar or payment platforms like UPI (Unified Payments Interface) are soft exports that can be

gifted not only to the neighbourhood but to the world, especially nations in Africa and South America, though it seems even the US and the EU could do with India's help here.

Handling Japan and Germany: Japan and Germany are nations that need a deeper engagement. The relationship with Japan is strategic and economic. It is strategic through the fledgling but upcoming Quadrilateral Security Dialogue, and it is economic through investments and trade. A friendly relationship, India and Japan need to strengthen both these trajectories, given that both have a hegemonic China to counter. Germany is a simpler relationship, resting more on trade, investments and technologies such as robotics than strategy or security. As its companies seek investment destinations in the face of rising costs domestically, India should work on making ease of manufacturing in India, and rethink a regulatory infrastructure of laws and regulations that are more welcoming, less threatening.

Navigating West Asia: To reach a \$10 trillion GDP, India will need more energy than ever before. Already the world's third-largest consumer of oil, India's needs will only rise in the foreseeable future, and West Asia is the geography we rely on. On the other side, the largest number of Indian diaspora is located in this area. Our relationship with the Gulf region, therefore, needs to look at energy imports and services exports that sustain the remittance economy. Because of these, there is a need for deepening the security relationship with the Gulf as well.

As a result, in the next decade India should forge a robust cooperative security mechanism, on the lines of the Quad, to ensure that India becomes an active participant in the provision of security in this critical region.

Way Forward

Today, an appreciation of world politics must include a proper understanding of Sino-US contradictions, of growing multi-polarity, of weaker multilateralism, of larger economic and political rebalancing, of greater space for regional powers, and of the world of convergences. Each of them is a factor in driving the policy initiatives of the present era. Whether it is our outreach to the Gulf, the advocacy of Indo-Pacific or more vigorous engagement of Europe, they represent a facet of a larger repositioning.

An economic turnaround and restoration of domestic political equilibrium will widen the space for foreign policy initiatives. Persistent economic uncertainty and radically disruptive politics at home will mean that the external affairs minister can at best conduct a holding operation, ensuring that the external environment does not also deteriorate. Merely because domestic politics has changed, we cannot afford to be adventurous in foreign policy. India has to assess external economic and geopolitical risk carefully and improve the quality

of the external communication of her national interests and personality.

General Studies Paper- II

Topic: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests.

Topic: Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

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7. NATIONAL STRATEGY FOR FINANCIAL INCLUSION : AN OVERVIEW

Why in News?

The Reserve Bank of India (RBI) has chalked out an ambitious strategy for financial inclusion till 2024, in which it aims to strengthen the ecosystem for various modes of digital financial services in all Tier-II to Tier VI centres to create the necessary infrastructure to move towards a less-cash society by March 2022.

Introduction

Financial inclusion is increasingly being recognised as a key driver of economic growth and poverty alleviation world over. Access to formal finance can boost job creation, reduce vulnerability to economic shocks and increase investments in human capital. Without adequate access to formal financial services, individuals and firms need to rely on their own limited resources or rely on costly informal sources of finance to meet their financial needs and pursue growth opportunities.

Seven of the United Nations Sustainable Development Goals (SDG) of 2030 view financial inclusion as a key enabler for achieving sustainable development worldwide by improving the quality of lives of poor and

marginalized sections of the society. To achieve the above objectives in a coordinated and time-bound manner, preparation of a National Strategy for Financial Inclusion (NSFI) is essential.

Globally, the adoption of NFIS have accelerated significantly in the past decade. Keeping in view the global trend, RBI under the aegis of Financial Inclusion Advisory Committee (FIAC) initiated the process of formulation of NSFI for the period 2019-2024.

The NSFI sets forth the vision and key objectives of the financial inclusion policies in India to expand the reach and sustain the efforts through a broad convergence of action involving all the stakeholders in the financial sector. The strategy aims to provide access to formal financial services in an affordable manner, broadening & deepening financial inclusion and promoting financial literacy & consumer protection.

Strategic Objectives of NFIS

To achieve the vision of ensuring access to an array of basic formal financial services, a set of guiding objectives have been formulated with special relevance in the Indian context.

Universal Access to Financial

Services: Every village to have access to a formal financial service provider within a reasonable distance of 5 KM radius. The customers may be on boarded through an easy and hassle-free digital process and processes should be geared towards a less-paper ecosystem.

Providing Basic Bouquet of

Financial Services: Every adult who is willing and eligible needs to be provided with a basic bouquet of financial services that include a Basic Savings Bank Deposit Account, credit, a micro life and non-life insurance product, a pension product and a suitable investment product.

Access to Livelihood and Skill

Development: The new entrant to the financial system, if eligible and willing to undergo any livelihood/ skill development programme, may be given the relevant information about the ongoing government livelihood programmes thus helping them to augment their skills and engage in meaningful economic activity and improve income generation.

Financial Literacy and Education:

Easy to understand financial literacy

modules with specific target audience orientation (e.g. children, young adults, women, new workers/ entrepreneurs, family person, about to retire, retired etc. in the forms of audio-video/ booklets shall be made available for understanding the product and processes involved. It is also expected that these modules would help the new entrants.

Customer Protection and Grievance Redressal: Customers shall be made aware of the recourses available for resolution of their grievances. About storing and sharing of customer's biometric and demographic data, adequate safeguards need to be ensured to protect the customer's Right to Privacy.

Effective Co-ordination: There needs to be a focused and continuous coordination between the key stakeholders viz. government, the regulators, financial service providers, telecom service regulators, skills training institutes etc. to make sure that the customers are able to use the services in a sustained manner. The focus shall be to consolidate gains from previous efforts through focus on improvement of quality of service of last mile delivery viz., capacity building of Business Correspondents, creating payments system ecosystems at village levels to deepen the culture of digital finance leading to ease of use and delivery.

Government Initiatives towards Financial Inclusion

India began its financial inclusion journey as early as in 1956 with the nationalisation of life insurance companies. This was followed by nationalisation of banks in 1969 and 1980. A review of the status of financial inclusion in India indicates that a host of initiatives have been undertaken over the years in the financial inclusion domain.

Direct Intervention

Pradhan Mantri Jan Dhan Yojana (PMJDY): Launched in August 2014, it was a watershed in the financial inclusion movement in the country. The programme leverages on the existing large banking network and technological innovations to provide every household with access to basic financial services, thereby bridging the gap in the coverage of banking facilities.

Under **Pradhan Mantri Suraksha Bima Yojana (PMSBY)** a renewable one- year accidental death cum disability cover of Rs. 2 lakhs is offered to all subscribing bank account holders in the age group of 18 to 70 years for a premium as low as Rs. 12/- per annum per subscriber.

Another insurance product with one-year term life cover of Rs. 2 lakhs under **Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)** is made available to all subscribing bank account holders in the age group of 18 to 50 years, for a premium of Rs330/- per annum per subscriber

To take care of the financial needs in old age, a pension product named **Atal Pension Yojana (APY)** guaranteed

by the Government of India has also been made available to the newly included bank account holders.

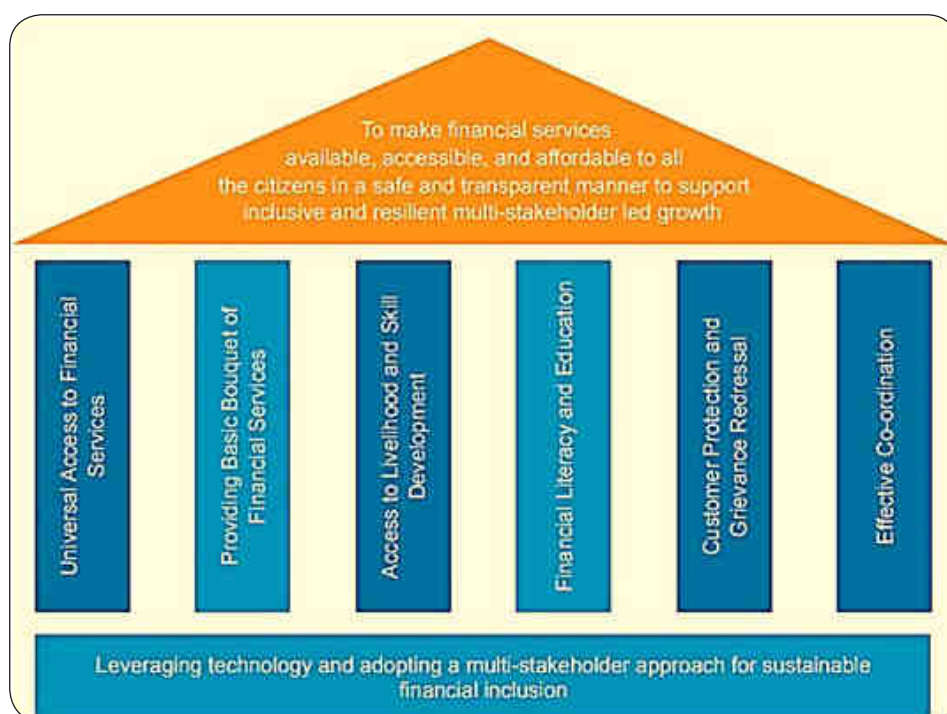
Target based Approach for Specific Sectors / Regions

Micro, Small and Medium Enterprises (MSMEs)

A special capacity building programme named 'National Mission for Capacity Building of Bankers for financing MSME Sector' (NAMCABS) was put in place to familiarise bankers with the entire gamut of credit related issues of the MSME sector.

A Certified Credit Counsellors (CCC) scheme was launched for creating a structured mechanism to assist the entrepreneurs in preparing financial plans and project reports in a professional manner, thus facilitating the banks to make informed credit decisions.

Web portals like the 'Udyami Mitra' and 'psbloanin59minutes' have also been launched to provide easy access to credit. Trade Receivables Discounting System (TReDS) platforms have been set up to address the problem of delayed payments to MSMEs.



Agriculture

To give a thrust to agriculture financing from the formal sector, banks have been mandated specific targets under priority sector scheme.

To provide adequate and timely credit support from the banking system under a single window to the farmers for their cultivation & other needs an innovative product viz., Kisan Credit Card Scheme (KCC) was introduced in August 1998 as a revolving cash credit for ease of access and delivery.

Reforms in Regulatory Framework

Banking: RBI has adopted a bank-led model to deepen financial inclusion. The banks were mandated to open branches nationwide especially in underbanked pockets which led to a considerable increase in bank branches and later Automated Teller Machines (ATMs) in the 1990s to early 2000.

To strengthen financial inclusion, RBI has relaxed the branch authorisation guidelines in 2017 wherein fixed-point Business Correspondent outlets serving for more than 4 hours a day and five days a week are treated on par with physical brick and mortar branches.

To widen financial inclusion, RBI has issued differentiated banking license viz., Small Finance Banks (SFBs) and Payments Banks in 2015.

Challenges

Despite the various measures that have been undertaken by various stakeholders in strengthening financial inclusion in the country, there are still critical gaps existing in the usage of financial services that require attention of policy makers through necessary co-ordination and effective monitoring.

1. Inadequate Infrastructure: Limited physical infrastructure, limited transport facility, inadequately trained staff etc., in parts of rural hinterland and far flung areas of the Himalayan and North East

regions create a barrier to the customer while accessing financial services.

2. Poor Connectivity: With technology becoming an important enabler to access financial services, certain regions in the country that have poor connectivity tend to be left behind in ensuring access to financial services thereby creating a digital divide. Technology could be the best bridge between the financial service provider and the last mile customer. Fintech companies can be one of the best solutions to address this issue. The key challenge that needs to be resolved would be improving tele and internet connectivity in the rural hinterland and achieving connectivity across the country.

3. Convenience and Relevance: The protracted and complicated procedures act as a deterrent while on-boarding customers. This difficulty is further increased when the products are not easy to understand, complex and do not meet the requirements of the customers such as those receiving erratic and uncertain cash flows from their occupation.

4. Socio-Cultural Barriers: Prevalence of certain value system and beliefs in some sections of the population results in lack of favourable attitude towards formal financial services. There are still certain pockets wherein women do not have the freedom and choice to access financial services because of cultural barriers.

5. Product Usage: While the mission-based approach to financial inclusion has resulted in increasing access to basic financial services including micro insurance and pension, there is a need to increase the usage of these accounts to help customers achieve benefits of relevant financial services and help

the service providers to achieve the necessary scale and sustainability. This can be undertaken through increasing economic activities like skill development and livelihood creation, digitising government transfers by strengthening the digital transactions' ecosystem, enhancing acceptance infrastructure, enhancing financial literacy and having in place a robust customer protection framework.

6. Payment Infrastructure: Currently, majority of the retail payment products viz., CTS, AEPS, NACH, UPI, IMPS etc. are operated by National Payments Council of India (NPCI), a Section (8) Company promoted by a group of public, private and foreign banks. There is a need to have more market players to promote innovation & competition and to minimize concentration risk in the retail payment system from a financial stability perspective

Recommendations

Universal Access to Financial Services

- ◆ The digital infrastructure in the country needs to be expanded through better networking of bank branches, BC outlets, Micro ATM, PoS terminals and stable connectivity etc. coupled with electricity. Efforts are needed to be undertaken through co-ordination with various stakeholders to ensure creation of the requisite infrastructure for moving towards completely digital on-boarding of customers.
- ◆ Encourage adoption and acceptance for digital payments and bringing people into the fold of formal financial system. In addition to the traditional banking outlets, efforts may also be taken to involve co-operative banks, Payments Banks, Small Finance Banks and

other non-bank entities such as fertilizer shops, fair price shops, office of the local government bodies, panchayat, common service centres, educational institutions, etc., to promote efficiency and transparency through digital transactions.

- ◆ Some of the issues such as remuneration to the BCs, need for furnishing cash-based collaterals, cash management issues and lack of insurance for cash in transit which act as deterrents in smooth functioning of the BC network, need to be redressed by banks in a timely manner.

Providing Basic Bouquet of Financial Services

- ◆ The banks may undertake periodic review of their existing products and adopt a customer centric approach while designing and developing financial products.
- ◆ Ensure efficient delivery by leveraging on Fin-tech and BC network.
- ◆ Initiate measures for capacity building of the BCs by encouraging and incentivizing them to acquire requisite certifications and enabling them to deliver a wide range of financial products.

Access to Livelihood and Skill Development

- ◆ There should be convergence of objectives of the National Rural Livelihood and Urban Livelihood Missions to deepen financial inclusion through an integrated approach.
- ◆ Inter-linkages may be developed between banks and other financial service providers with ongoing skill development, and livelihood

generation programmes through RSETIs, NRLM, SRLM, Pradhan Mantri Kaushal Vikas Yojana etc.

Financial Literacy and Education

- ◆ Customers need to be explained in simple language the nature of the product, its suitability to their requirements and the cost vis-a-vis return.
- ◆ Concerted efforts are needed to ensure coordination among the ground level functionaries viz. Lead District Manager (LDM), District Development Manager (DDM) of NABARD, Lead District Officer (LDO) of RBI, District and Local administration, Block level officials, NGOs, SHGs, BCs, Farmers' Clubs, Panchayats, PACS, village level functionaries etc. while conducting financial literacy programmes.

Effective Co-ordination

- ◆ Strengthen the various fora under Lead Bank Scheme viz., SLBC / DCC / BLBC to ensure the achievement of the vision of the strategy at the ground level.
- ◆ Leverage on the emerging developments in technology to promote effective stakeholder co-ordination by having in place a digital dashboard/ MIS monitoring.
- ◆ Encourage decentralized approach to planning and development by creating a forum to actively involve Gram Panchayats/ Civil Society/ NGOs to accelerate financial inclusion using various tools like social audit.

Conclusion

Over the next few years, it is envisaged that ubiquitous physical and digital connectivity coupled with full financial inclusion is possible owing to the

focused efforts being undertaken by the respective stakeholders. The issues like customer centric approach for product design and delivery, focus on financial literacy and strengthening the customer protection framework need adequate focus to ensure that the momentum generated by the government's PMJDY needs to be taken forward to ensure better delivery and choices available to the end customers with active involvement from the service providers including private sector players. To achieve all this, substantial efforts are needed not only from banks and other financial institutions, but also from an array of other stakeholders including civil society.

Also the need for an objective and a scientific assessment of the progress made in financial inclusion cannot be overlooked. While a lot of data collection efforts are underway, there is a need to go beyond data collected from financial service providers alone. Surveys and feedback from the customers, leveraging on Big Data sets and importantly collecting and analyzing granular data to gather a holistic perspective on the coverage and also the usage of financial services is essential. Insights on the quality of financial services delivered to various target groups would be very useful to see the impact of financial inclusion policies on overall financial wellbeing.

General Studies Paper- III

Topic: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Topic: Inclusive growth and issues arising from it.

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SEVEN SUBJECTIVE QUESTIONS WITH MODEL ANSWERS

1. Improving Access to Agricultural Credit : New Perspectives

Q. Over the years, India has attempted various measures to narrow the gap in financial inclusion for its farmers, yet the goal continues to elude the country. Discuss.

Hints:

- ◆ India's agrarian crisis has deepened in the past several years, contributing to the slowdown of the economy. Amongst the most crucial factors affecting the country's agricultural sector is financial inclusion.
- ◆ Access to institutional credit demands the ownership of assets and income that evaluates the creditworthiness of a potential borrower. Lack of such creditworthiness implies access exclusion.
- ◆ The agricultural crisis in India is deepening. It has in recent times pushed the economy in the direction of a slowdown. While it is equally true that the economy needs land and labour reforms, it needs to be innovative in solving longstanding problems like financial exclusion.
- ◆ The perception towards the poor farmers in the country needs to change. Instead of looking at them as high-risk, low-quality credit assets, they must be viewed as an untapped credit market. The features of this market, more specifically, the character of the demand of this market, need to be understood to develop tailored products that cater effectively to this market.
- ◆ An important reason why poor farmers in India are high-risk, low-quality assets is because they are not insulated from the vagaries of nature and do not have the wherewithal to reduce the risk of loan failure. Therefore, financial inclusion cannot stop at providing capital. It has to ensure that the probability of loan failure is minimised.
- ◆ The strong reliance of agricultural households' incomes on casual wage labour needs to be replaced by formal earnings.

2. Drones' Operations and Regulations in India

Q. Discuss the features of new Drones' policy of India. Also mention some of the challenges and lacunas in current policy?

Hints:

- ◆ The Union civil aviation ministry of India has made public the draft note for Drone policy 2.0 focusing majorly on Beyond Visual Line of Sight (BVLOS) operations.
- ◆ The draft Drone Policy 2.0 mandates a 'privacy by design' standard. Drone Policy 1.0 does not stipulate privacy standards to be adhered to by RPA operators though they are under an obligation to not compromise the privacy of any "entity".
- ◆ The draft policy proposes 100% FDI under automatic route in UAS and RPAS-based commercial civil aviation services.
- ◆ While the policy directs the operators to follow the regulatory checks, it does not outline an automated mechanism to guarantee safe and secure operation at low elevations. The policy also does not provide for a way to monitor how drones collect, use, store and share data.
- ◆ Also, it does not account for the rapid advances in artificial intelligence that could lead to unexpected applications of drones. Further, it does not contain any arrangement for resolving the conflict between rival drones operations.
- ◆ They may also be misused for unethical activities such as corporate espionage, trespassing, surveillance, unauthorised photography and burglary.
- ◆ Since Indian cities are growing vertically, having nano drones flying around without much regulation may lead to the invasion of privacy.
- ◆ They may also be misused for unethical activities such as corporate espionage, trespassing, surveillance, unauthorised photography and burglary.

3. Opening up the Coal Mining Sector : An Analysis

Q. The governments decision to liberalise norms for entry into coal mining and relax regulations on mining and selling coal in the country is significant in many respects. Discuss.

Hints:

- ◆ The union government is planning to open up the coal sector with a large offering of more than 200 blocks for commercial coal mining in the next five years.
- ◆ The ordinance will amend Section 11A of the act and open up coal mining to all firms with offices registered in India and also does away with the captive end-use-criteria.
- ◆ Amendment will put an end to the captive coal block auctions in the future, and open the Indian coal sector completely for commercial mining for all local and global firms.
- ◆ The ordinance essentially democratises the coal industry and makes it attractive for merchant mining companies, including multinationals such as BHP and Rio Tinto, to look at India.
- ◆ The move was overdue considering that the country spent a huge 1,71,000 crore in coal imports last year to buy 235 million tonnes.

4. State Energy Efficiency Index 2019 : An Overview

Q. The achievement of India's goals for Energy Efficiency hinges as much on the success of energy efficiency programmes in states, as in nationwide programmes. Elaborate.

Hints:

- ◆ India is marching on the path of energy transition, shifting away from fossil fuels and focusing on decentralized energy resources. EE will be central to this transition process as it helps to make the transition faster and more economical.
- ◆ States have a vital role in India's energy efficiency policy implementation and in meeting state-specific goals on sustainable development in the most energy efficient way. A department/agency has been designated as the State Designated Agency (SDA) within each state. All the SDAs have been empowered by the Energy Conservation Act, 2001 (EC Act) to co-ordinate, regulate and enforce the provisions of the EC Act in states.

- ◆ It is observed that states have confined their role towards customization of national policies and legislative approval. Now states must take an active authority to exercise powers under the EC Act and start formulating supporting policies and implementation rules to shift the focus from "policies in place" to "policies successfully implemented".
- ◆ States must make independent monitoring and verification of savings integral to all EE policies and programs. Energy audit leads to an estimate of the savings potential contingent to use of energy savings measures and onsite usage conditions. Post-implementation audit determines the actual savings. Hence, a digression from the conventional wisdom of "Potential equals Savings" is required for a true measure of actual energy savings achieved.

5. Combating Dengue : Requires Holistic Approach

Q. Government of India has taken various steps for prevention and control of Dengue and Chikungunya in the country. Discuss.

Hints:

- ◆ Dengue, mosquito borne viral infection with potentially lethal consequences, has been declared one of the most significant and prevalent arthropod-borne communicable diseases.
- ◆ Government of India has taken various steps for prevention and control of Dengue and Chikungunya in the country as detailed below:
 - ◆ Developed a Long Term Action Plan for Prevention and Control of Dengue in the country and sent to the State(s) on January 2007 for implementation.
 - ◆ Established Sentinel Surveillance Hospitals with laboratory support for augmentation of diagnostic facility for Dengue in endemic State(s) in 2007 which has been increased to 170 in 2009. All these are linked with 13 Apex Referral Laboratories with advanced diagnostic facilities for back up support.
 - ◆ National Vector Borne Disease Control Programme (NVBDCP) is an umbrella programme responsible for the prevention and control of vector borne diseases i.e. Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis and Chikungunya in India.
- ◆ The need of the hour is to take a holistic approach involving efficient vector control and proper case management apart from vaccination.

6. Six Focused Areas for India's Foreign Policy in 2020

Q. As India enters the 2020s with this economic trajectory ahead, there are various areas it must work on over the decade with a greater focus. Discuss it in context of Indian foreign policy.

Hints:

- ◆ As India enters the 2020s with this economic trajectory ahead, there are six areas it must work on over the decade with a greater focus.
- ◆ A high GDP is a necessary condition for global influence. But it is not a sufficient condition. To bring sufficiency, India's foreign policy, while leaning on it, must power India's economic policy.
- ◆ India-US ties extend wide and deep, from trade and economy to security and defence. Not always has the US been a dependable partner. But in the foreseeable future, the US relationship is here to stay.
- ◆ The biggest policy challenge in this decade would be to keep Chinese companies out of India's 5G rollout. Managing the border will be another challenge.
- ◆ With Russia, a deeper engagement on the energy front is possible, if we can design gas routes. With France, following the Framework Agreement on Civil Nuclear Cooperation, this decade should see a greater push to build nuclear power plants.
- ◆ Given that Bhutan, Maldives and Myanmar are on course, the coming decade should see India step out and repair relationships with Nepal, Bangladesh and Sri Lanka.
- ◆ Being the bigger economy and a more influential nation, India must rethink these relationships and rebuild new bridges over water that has flown.
- ◆ We have needlessly allowed China to fill up the vacuum left behind by our indifference. A little diplomatic humility will go a long way in restoring past goodwill.

7. National Strategy for Financial Inclusion : An Overview

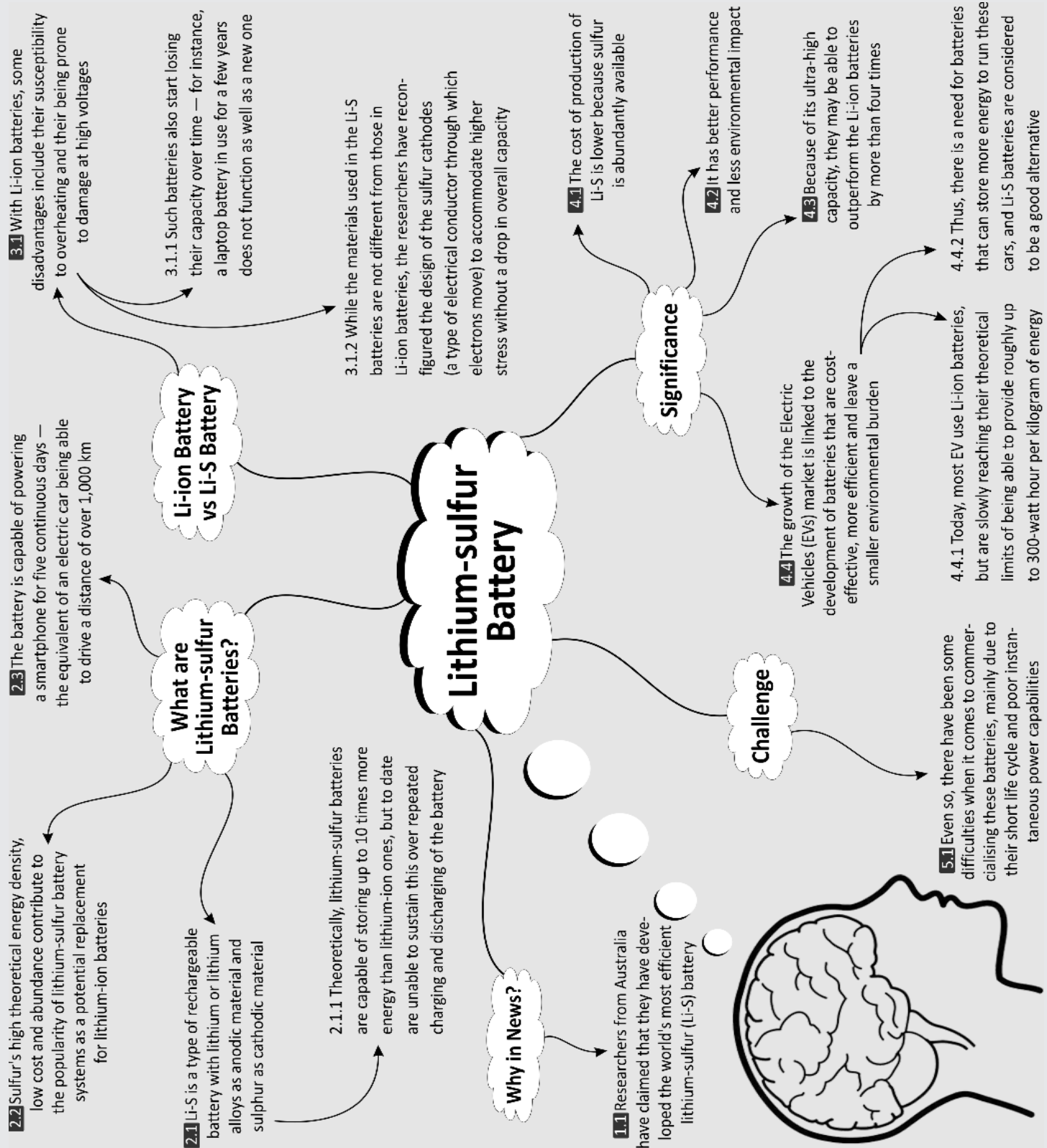
Q. Financial inclusion is increasingly being recognised as a key driver of economic growth and poverty alleviation world over. In the light of this statement, discuss the government's efforts towards financial inclusion in India.

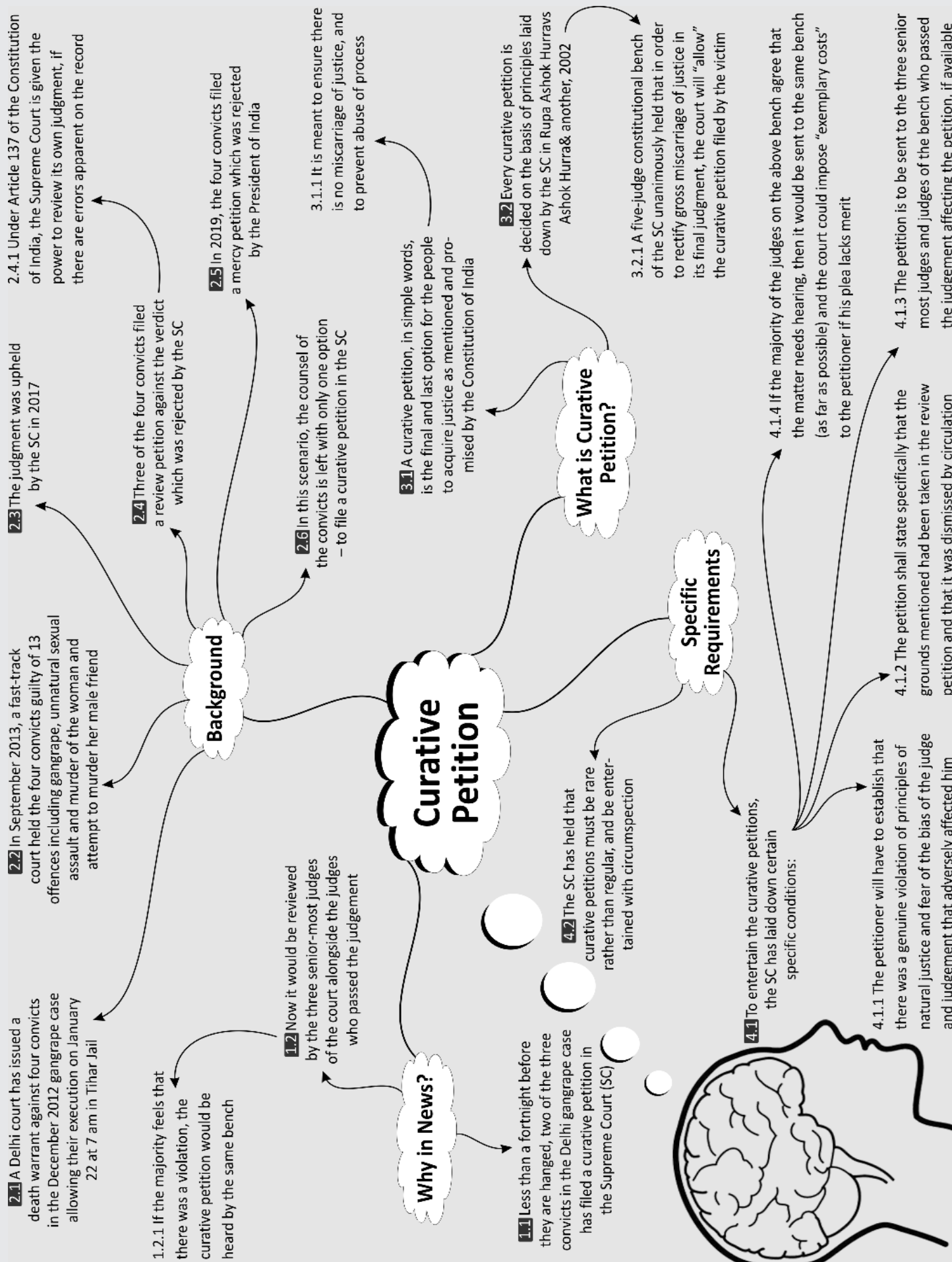
Hints:

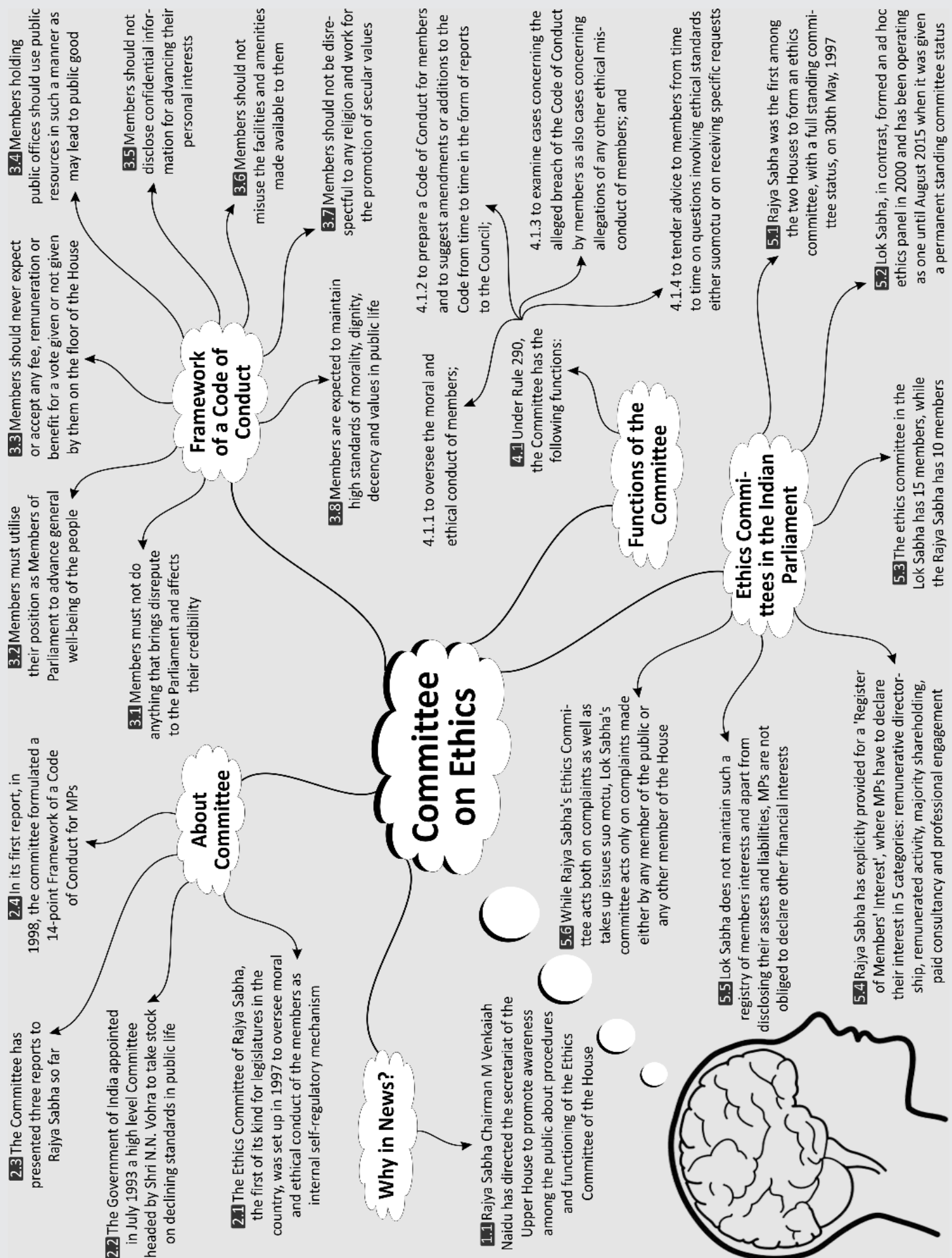
- ◆ Seven of the United Nations Sustainable Development Goals (SDG) of 2030 view financial inclusion as a key enabler for achieving sustainable development worldwide by improving the quality of lives of poor and marginalized sections of the society.
- ◆ The Reserve Bank of India (RBI) has chalked out an ambitious strategy for financial inclusion till 2024, in which it aims to strengthen the ecosystem for various modes of digital financial services in all Tier-II to Tier VI centres to create the necessary infrastructure to move towards a less-cash society by March 2022.
- ◆ Pradhan Mantri Jan Dhan Yojana (PMJDY): Launched in August 2014, it was a watershed in the financial inclusion movement in the country. The programme leverages on the existing large banking network and technological innovations to provide every household with access to basic financial services, thereby bridging the gap in the coverage of banking facilities.
- ◆ Another insurance product with one-year term life cover of Rs. 2 lakhs under Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) is made available to all subscribing bank account holders in the age group of 18 to 50 years, for a premium of Rs330/- per annum per subscriber
- ◆ To take care of the financial needs in old age, a pension product named Atal Pension Yojana (APY) guaranteed by the Government of India has also been made available to the newly included bank account holders.

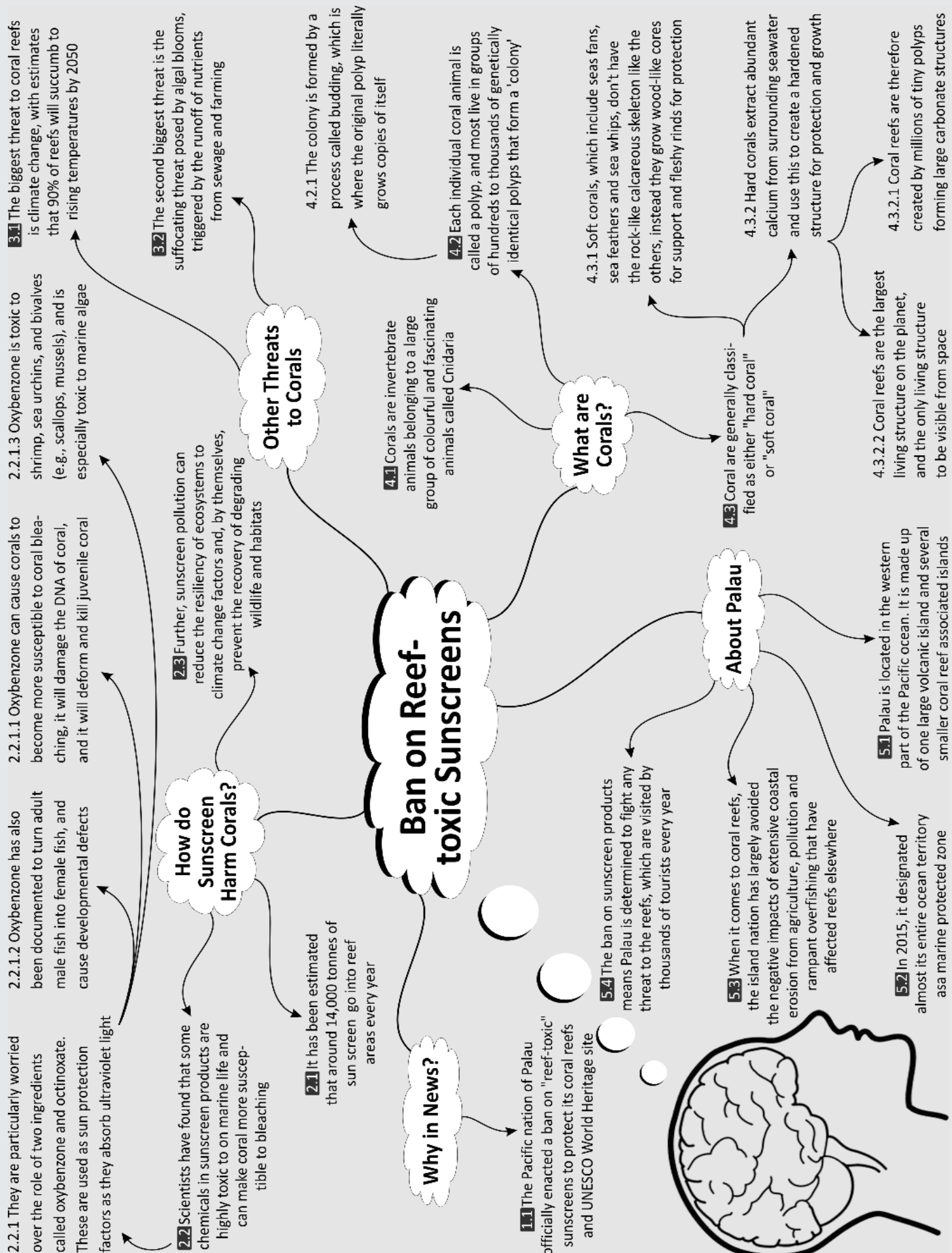


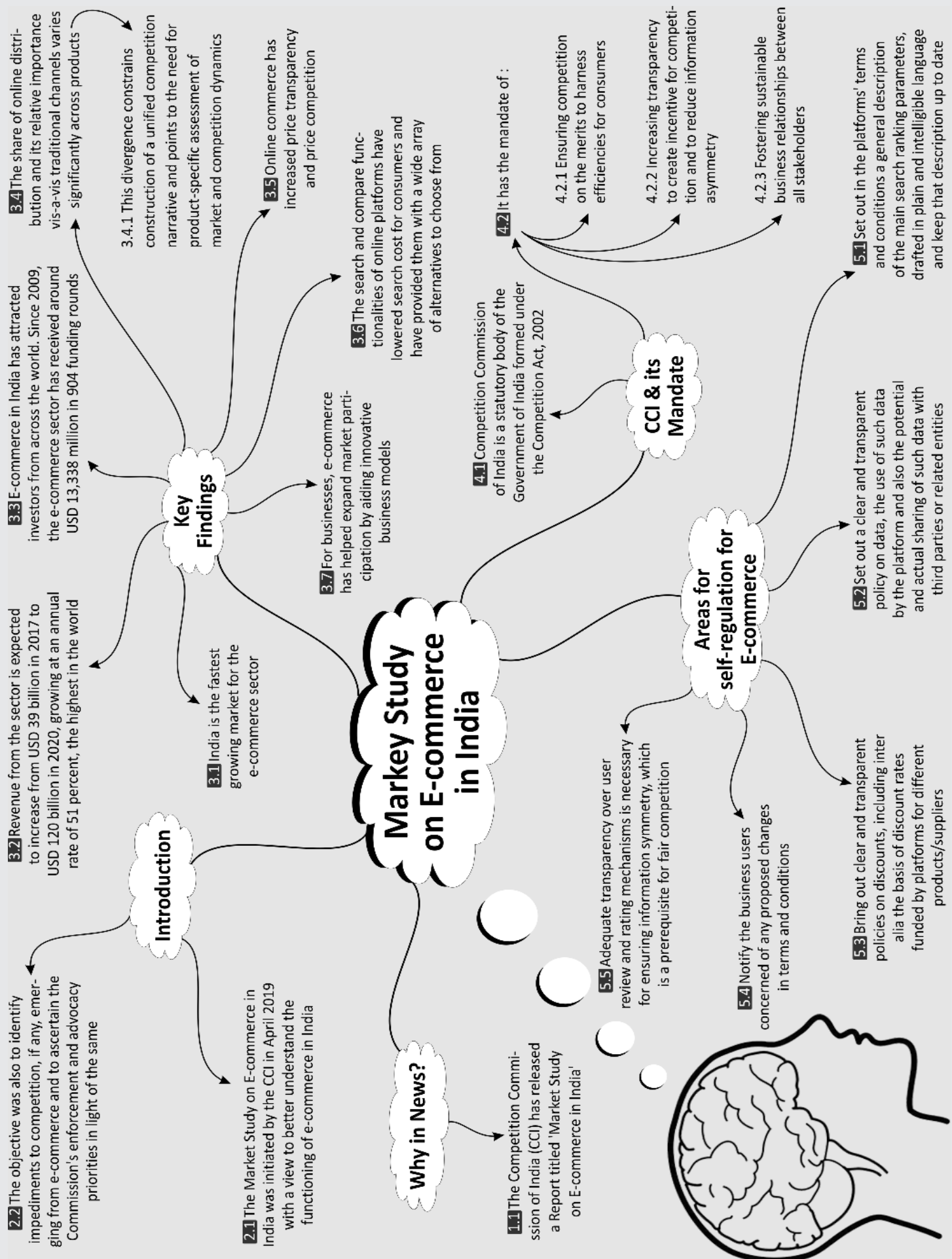
SEVEN BRAIN BOOSTERS

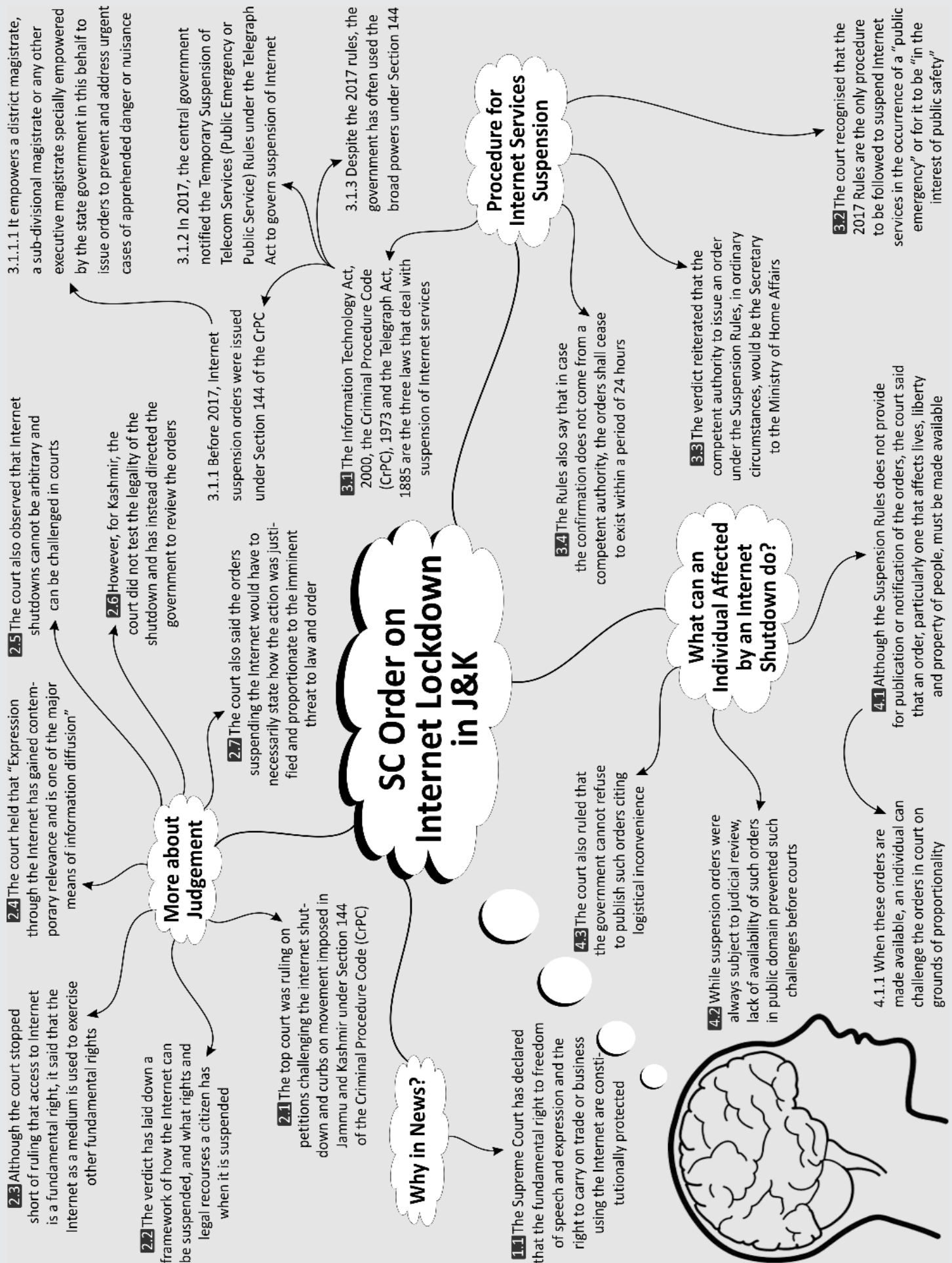


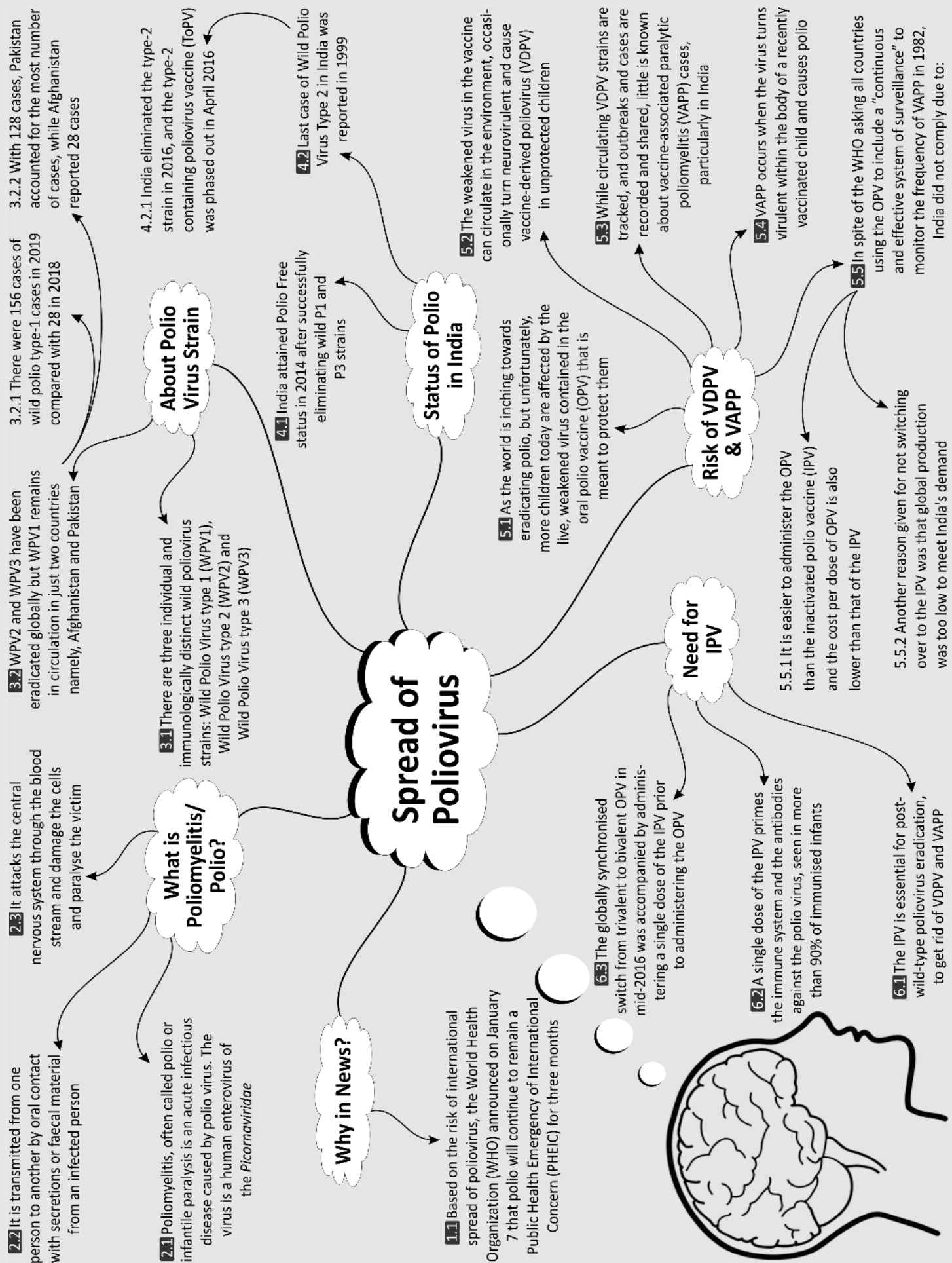












SEVEN MCQ's WITH EXPLANATORY ANSWERS

(Based on Brain Boosters)

1. Lithium-sulfur Battery

Q. Consider the following statements with respect to 'Li-S Battery':

1. Theoretically, lithium-sulfur batteries are capable of storing up to 10 times more energy than lithium-ion ones.
2. Li-S batteries are generally considered to be the successors of the Lithium-ion batteries because of their lower cost of production, energy efficiency and improved safety.

Which of the statements given above is/are correct?

- a) 1 only
- b) 2 only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: (c)

Explanation: Both statements are correct. Theoretically, lithium-sulfur batteries are capable of storing up to 10 times more energy than lithium-ion ones, but to date are unable to sustain this over repeated charging and discharging of the battery.

Sulfur's high theoretical energy density, low cost and abundance contribute to the popularity of lithium-sulfur battery systems as a potential replacement for lithium-ion batteries.

2. Curative Petition

Q. With reference to the 'curative petition', consider the following statements:

1. The concept originated from the case of Rupa Ashok Hurra vs. Ashok Hurra and Another, 2002.
2. A curative petition is the final and last option for the people to acquire justice as mentioned and promised by the Constitution of India.
3. A curative petition can be filed in any High Court of India.

Which of the statements given above is/are correct?

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

Answer: (a)

Explanation: Statements 1 and 2 are correct. The concept originated from the case of Rupa Ashok Hurra vs.

Ashok Hurra and Another, 2002. A curative petition, in simple words, is the final and last option for the people to acquire justice as mentioned and promised by the Constitution of India. It is meant to ensure there is no miscarriage of justice, and to prevent abuse of process.

Statement 3 is incorrect. A five-judge constitutional bench of the SC unanimously held that in order to rectify gross miscarriage of justice in its final judgment, the court will "allow" the curative petition filed by the victim.

3. Committee on Ethics

Q. Consider the following statements with respect to 'Committee on Ethics of Rajya Sabha':

1. It oversees moral and ethical conduct of the members as internal self-regulatory mechanism.
2. Under Rule 295, any person can make a complaint of unethical conduct against a member of the House.
3. But, the committee cannot take up such matters suo-motu.

Which of the statements given above is/are correct?

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

Answer: (d)

Explanation: Statements 1 and 2 are correct. Under Rule 290, the Committee oversees the moral and ethical conduct of members; prepare a Code of Conduct for members; among others.

Under Rule 295, any person can make a complaint of unethical conduct against a member of the House in writing – either to the Ethics Committee or an officer authorised by the committee.

Statement 3 is incorrect. The committee can also take up such matters suomotu.

4. Ban on Reef-toxic Sunscreens

Q. Recently, Palau has banned many types of sunscreen. Consider the following statements in this regard:

1. Chemical like oxybenzone in sunscreen products can damage the DNA of coral, and it will deform and kill juvenile coral.

2. Further, sunscreen pollution can reduce the resiliency of ecosystems to climate change and prevent the recovery of degrading wildlife and habitats.

Which of the statements given above is/are correct?

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

Answer: (c)

Explanation: Both statements are correct. Oxybenzone can cause corals to become more susceptible to coral bleaching, it will damage the DNA of coral, and it will deform and kill juvenile coral.

Further, sunscreen pollution can reduce the resiliency of ecosystems to climate change factors and, by themselves, prevent the recovery of degrading wildlife and habitats.

5. Markey Study on E-commerce in India

Q. Consider the following statements with respect to 'Market Study on E-commerce in India':

- It has been released by NITI Aayog.
- Revenue from the e-commerce sector is expected to grow at an annual rate of 51 percent.

Which of the statements given above is/are correct?

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

Answer: (b)

Explanation: Statement 1 is incorrect. The Competition Commission of India (CCI) has released a Report titled 'Market Study on E-commerce in India'.

Statement 2 is correct. India is the fastest growing market for the e-commerce sector. Revenue from the sector is expected to increase from USD 39 billion in 2017 to USD 120 billion in 2020, growing at an annual rate of 51 percent, the highest in the world.

6. SC Order on Internet Lockdown in J&K

Q. Consider the following statements:

- The Supreme Court has declared access to internet as a fundamental right.
- The court also observed that internet shutdowns cannot be arbitrary and can be challenged in courts.
- In India, three laws namely the Information Technology Act, 2000, the Criminal Procedure

Code (CrPC), 1973 and the Telegraph Act, 1885 deal with suspension of internet services.

Which of the statements given above is/are correct?

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

Answer: (c)

Explanation: Statement 1 is incorrect. The court stopped short of ruling that access to Internet is a fundamental right, it said that the Internet as a medium is used to exercise other fundamental rights.

Statement 2 and 3 are correct. The court observed that Internet shutdowns cannot be arbitrary and can be challenged in courts.

The Information Technology Act, 2000, the Criminal Procedure Code (CrPC), 1973 and the Telegraph Act, 1885 are the three laws that deal with suspension of Internet services. Before 2017, Internet suspension orders were issued under Section 144 of the CrPC.

7. Spread of Poliovirus

Q. With reference to the polio, which one of the following statement is not correct?

- Poliomyelitis, often called polio or infantile paralysis is an acute infectious disease caused by polio virus.
- It attacks the central nervous system through the blood stream and damages the cells and paralyse the victim.
- Wild Polio Virus Type 1 remains in circulation in just two countries namely, Afghanistan and Pakistan.
- Till now, India has not attained Polio Free status.

Answer: (d)

Explanation: Statement 1 and 2 are correct. Poliomyelitis, often called polio or infantile paralysis is an acute infectious disease caused by polio virus. It attacks the central nervous system through the blood stream and damage the cells and paralyse the victim.

Statement 3 is also correct. WPV2 and WPV3 have been eradicated globally but WPV1 remains in circulation in just two countries namely, Afghanistan and Pakistan.

Statement 4 is incorrect. India attained Polio Free status in 2014 after successfully eliminating wild P1 and P3 strains. Last case of Wild Polio Virus Type 2 in India was reported in 1999. India eliminated the type-2 strain in 2016, and the type-2 containing poliovirus vaccine (ToPV) was phased out in April 2016.



SEVEN IMPORTANT FACTS FOR PRELIMS

1. Recently launched web portal, 'Central Equipment Identity Register (CEIR)' comes under which ministry?

- Ministry for Communications

2. Recently which fighter aircraft, also earned the moniker 'Bahadur' , has been decommissioned by Indian Air Force?

- Mig 27

3. Suruli Falls, recently in news, is located in which state?

- Tamilnadu

4. 'Bougainville' referendum is related to which country?

- Papua New Guinea

5. Aberdeen Police Station, chosen as the best police station in the country is located in ?

-Andaman and Nicobar Islands

6. A first-of-its-kind rehabilitation centre for freshwater turtles will be inaugurated in which city?

- Bhagalpur (Bihar)

7. Which Indian-origin writer has recently been awarded the UK Children's Book Award?

- Jasbinder Bilan

○○○

SEVEN PRACTICE QUESTIONS FOR MAINS EXAM

1. "India cannot afford to take sides in US-Iran tensions, energy supplies and safety of its diaspora are major concerns. But New Delhi must activate its regional diplomacy." Do you agree? Give your opinion.
2. State and society must seek avenues that could end the longstanding tension between the two. Discuss it in context of present socio-political scenario in India.
3. "The conflict between agreement and disagreement is the first and foremost sign of a healthy democracy." Comment.
4. Discuss the concept of 'Juice Jacking'?
5. Growth of GST collections has slowed since Q4FY19, in line with the fall in corporate tax collections, indicating the impact of sluggish economic growth. Critically Analyse
6. Early childhood education has the potential to be the "greatest and most powerful equaliser". Discuss
7. The existing system of food subsidy is heavily biased in favour of two cereal crops, i.e. wheat and rice. Discuss its implications for the food & Nutrition Security of India.

○○○

SEVEN IMPORTANT NEWS

1. TOI 700 d

NASA has reported the discovery of an Earth-size planet, named 'TOI 700 d', orbiting its star in the "habitable zone". The newest such planet was found by NASA's Transiting Exoplanet Survey Satellite (TESS) mission, which it launched in 2018. The find was confirmed by the Spitzer Space Telescope, which sharpened the measurements that TESS had made, such as orbital period and size.

What is Goldilocks Zone?

A habitable zone, also called the "Goldilocks zone", is the area around a star where it is not too hot and not

too cold for liquid water to exist on the surface of surrounding planets. Obviously, our Earth is in the Sun's Goldilocks zone. If Earth were where the dwarf planet Pluto is, all its water would freeze; on the other hand, if Earth were where Mercury is, all its water would boil off.

About New Planet

TOI 700 d measures 20% larger than Earth. It orbits its star once every 37 days and receives an amount of energy that is equivalent to 86% of the energy that the Sun provides to Earth. The star, TOI 700, is an "M dwarf"

located just over 100 light-years away in the southern constellation Dorado, is roughly 40% of our Sun's mass and size, and has about half its surface temperature.

Two other planets orbit the star — TOI 700 b, which is almost exactly Earth-size, probably rocky, and which completes an orbit every 10 days, and TOI 700 c, the middle planet, which is 2.6 times larger than Earth, is probably gas-dominated, and orbits every 16 days. TOI 700 d is the outermost planet, and the only one in the star's habitable zone. ■

2. Operation Sankalp

In the backdrop of the deteriorating security situation in the Gulf region, the Indian Navy (IN) has commenced Maritime Security Operations, code named Operation Sankalp, in the Gulf Region to ensure safe passage of Indian Flag Vessels transiting through the Strait of Hormuz.

Key Highlights

INS Chennai and INS Sunayna have been deployed in the region to undertake maritime security operations. In

addition, aerial surveillance in the area is also being done by IN aircraft.

The Information Fusion Centre - Indian Ocean Region of the Indian Navy is also keeping a close watch on the movement of ships in the Gulf region.

About Persian Gulf

The Persian Gulf is located in southwestern Asia. It separates the Arabian Peninsula from Iran. It connects with the Gulf of Oman and the Arabian Sea through the Strait of Hormuz, which is 30 to 60 miles (48 to 96 kilometers) wide. It is bordered on the north, northeast, and east by Iran; on the southeast and south by part of Oman and the United Arab Emirates; on the southwest and west by Qatar, Bahrain, and Saudi Arabia; and on the northwest by Kuwait and Iraq.

About Gulf of Oman

The Gulf of Oman is an arm of the Arabian Sea that borders Iran and south-western Pakistan to the north and Oman and the United Arab Emirates to the south. It offers the only entrance from the Arabian Sea and the Indian Ocean into the Persian Gulf.

Background

The operation has been launched in the wake of escalating tension in the Gulf of Oman, where two oil tankers were attacked. The incident has since heightened tensions between Tehran and Washington. It remains unclear who was responsible for the attacks but the United States has put the blame on Iran, which, in turn, has denied the allegations. ■



3. Neon- The World's First 'Artificial Human'

Samsung backed Samsung Technology and Advanced Research Labs (STAR) Labs has introduced what it calls the world's first 'Artificial Human' called 'Neon'. At the Consumer Electronics Show (CES) 2020, Star Labs demoed six avatars of Neon based on people from different walks of life including a yoga instructor, a banker, a K-pop star, a news anchor, and a fashion model among others. While Neon avatars may look like these real people, they show their unique personalities and show new expressions, movements, and dialogues. This is quite different from the techniques used in facial recognition.

Key Highlights

- ◆ Neon is a computationally created virtual being that looks and behaves like a real human, with the ability to show emotions and intelligence.
- ◆ Neons are not AI assistants, neither an interface to the Internet or a music player. They would act simply as a friend and will be able to speak languages ranging from Spanish to Hindi, from Japanese to English.
- ◆ Marketed as the first "Artificial Human", it has been designed to learn new skills and form memories and experiences.

- ◆ Each Neon is powered by the company's proprietary technology platform - CORE R3, where R3 stands for Reality, Realtime and Responsive. CORE R3 leapfrogs in the domains of Behavioural Neural Networks, Evolutionary Generative Intelligence and Computational Reality.
- ◆ Currently, Neons don't have a physical embodiment, but rather, are digitally composed next-generation artificial intelligent entities. Neons are Artificial Humans.

4. Chinese Paddlefish

According to a recent study in the journal Science of the Total Environment, Chinese paddlefish -one of the world's largest freshwater fish is completely disappeared between 2005 and 2010, with the last confirmed sighting in 2003. China's Yangtze River, the world's third longest river, is home to 378 known species of fish. Further, the study has concluded that the species has gone extinct, mainly due

to overfishing and dam construction. The paddlefish's extinction is the latest to cause researchers to sound a global alarm bell on the dangers of overfishing and habitat fragmentation.

Reasons

About Chinese Paddlefish

The Chinese paddlefish (*Psephurus gladius*), also known as the Chinese swordfish and sometimes called the "panda of the Yangtze," was one of the world's largest freshwater fish species. It could grow as long as 23 feet (7 meters) and weigh up to 992 pounds (450 kilograms). Only a few freshwater fish can grow bigger, such

as the Mekong giant catfish, sturgeon and alligator gar.

IUCN Status

According to the International Union for Conservation of Nature Red List of Endangered Species, the only living species of paddlefish is the American paddlefish, which inhabits several states in the U.S. but has gone extinct in Michigan and in Canada.

The IUCN Red List has listed the Chinese paddlefish as "critically endangered" since the 1990s, estimating its population at less than 50 individuals in 2009.

Chinese paddlefish

Psephurus gladius



5. Iran Designated US Forces 'Terrorists'

Iran's parliament has passed a bill to designate all US forces "terrorists" over the killing of a top Iranian military commander in a US strike. Under the newly adopted bill, all US forces

and employees of the Pentagon and affiliated organisations, agents and commanders and those who ordered the "martyrdom" of Soleimani were designated as "terrorists". The bill is

similar to the action the US took last year when the Trump administration designated Iran's Islamic Revolutionary Guard Corps (IRGC) as a foreign terrorist organization.

Background

Tensions between the US and Iran have been steadily developing since the late seventies, but the death of General Qasem Soleimani has potentially pushed the countries to the brink of war. In 1979, Iran's US-backed Shah was overthrown and the

country became an Islamic republic. That year dozens of Americans were taken hostage inside the US embassy in Tehran, the country's capital, during the fallout from the revolution.

Since then, the relationship between the two nations has been strained. Iran announced that it

would be stepping out of the 2015 nuclear deal with world powers. Donald Trump pulled the US out of the deal in July 2018, labelling it as "horrible" and "one-sided" which left them to be "held hostage to nuclear blackmail".

6. Amma Vodi Scheme

The government of Andhra Pradesh has launched the 'Jagananna Amma Vodi scheme' with an objective to increase the Gross Enrolment Ratio in primary and secondary level of education and encourage poor families to make their children pursue education irrespective of their financial status.

Key Highlights

Under the scheme, the mother of a child, who is studying in any recognised school in the State, will be paid Rs 15,000 per year until he/she reaches Class XII or Intermediate. The financial assistance will be paid to the mother or guardian who is below the poverty

line, irrespective of the number of children of that family studying from class I to XII in government, recognised private aided and private unaided schools, junior colleges and residential schools.

A student requires a minimum attendance of 75 per cent to get the financial assistance under the scheme. The annual income of the beneficiary family should not exceed Rs 1 lakh. The beneficiary mothers should also possess Aadhaar and white ration cards.

If the beneficiary students discontinue their studies in the middle



of the academic year, they will not be paid the benefit for that academic year.

The scheme will be extended to orphans and street children, who are admitted in school through voluntary organisations, after consultation with the department concerned.

7. Coronavirus

Chinese researchers has identified a new virus- coronavirus. They said it was responsible for a new pneumonia-like illness that had swept Wuhan since last month, leaving 59 ill and created panic.

What is Coronavirus?

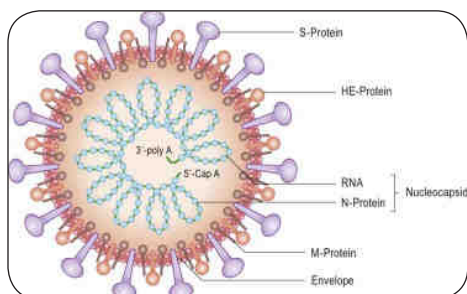
Coronaviruse is a specific family of viruses, with some of them causing less-severe damage, such as the

common cold, and others causing respiratory and intestinal diseases. A coronavirus has many "regularly arranged" protrusions on its surface, because of which the entire virus particle looks like an emperor's crown, hence the name "coronavirus".

Apart from human beings, coronaviruses can affect mammals including pigs, cattle, cats, dogs, martens, camels, hedgehogs and some birds. So far, there are four known disease-causing coronaviruses, among which the best known are the SARS corona virus and the Middle East Respiratory Syndrome (MERS) coronavirus, both of which can cause severe respiratory diseases. In the newly identified coronavirus, a direct

link with the disease has not been established yet. Previously, there was speculation that the mystery illness was related to the SARS epidemic in China in the latter half of 2002 that killed roughly 350 people. Now, the new coronavirus has been detected in over 15 cases so far. No deaths have been reported, nor has any case been reported of human-to-human transmission.

The new coronavirus is different from human coronaviruses already known. WHO said in a statement that further investigations are required to determine the source, modes of transmission and extent of infection caused by the new virus.

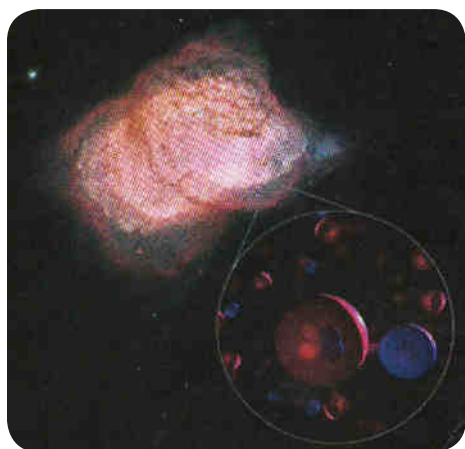


SEVEN IMPORTANT SCIENTIFIC HIGHLIGHTS OF LAST YEAR

1. Space Exploration-I

Bedin 1, Dwarf Spheroidal Galaxy Found

With the help of the NASA/ESA Hubble Space Telescope, astronomers have found a new dwarf galaxy in our cosmic neighbourhood which has been named



as Bedin 1. The newly discovered galaxy is approximately 30 million light-years away and is classified as a dwarf spheroidal galaxy as it measures only around 3,000 light-years at its greatest extent and is roughly a thousand times dimmer than our own Milky Way Galaxy.

K2-288Bb — Discovered in a Low-mass Binary System

NASA's Kepler Space Telescope unveiled a super-Earth planet K2-288Bb which is roughly twice the size of Earth orbiting a star in the low-mass binary system K2- 288 in the constellation of Taurus about 226 light-years from Earth. The newly discovered world could be rocky or gaseous similar to Neptune. The discovery was reported in *Astronomical Journal*.

Universe's First Molecule Spotted in Space

After decades of searching, NASA's Stratospheric Observatory for Infrared Astronomy (SOFIA) detected the first elusive molecule that ever formed in the universe for the first time. The discovered molecule is Helium Hydride (HeH^+) on a planetary nebula namely NGC-7027, a remnant of the Sun-like star, situated 3,000 light-years away near the constellation Cygnus. The molecule is considered to be formed some 380,000 years after the Big Bang and is regarded as the first molecular bond. The discovery was published in *'Nature'*.

2. Space Exploration-II

Black Hole Devouring Neutron Star Detected for the First Time

Astronomers from the Australian National University (ANU) detected a black hole devouring a neutron star for the first time. In August 2019, gravitational-wave discovery machines



in the US and Italy spotted ripples in space and time from a cataclysmic event. "About 900 million years ago, this black hole ate a very dense star, known as a neutron star, like Pacman - possibly snuffing out the star instantly.

Giant Planet Orbiting Dead Dwarf Star

Astronomers from the University of Warwick's Department of Physics and the Millennium Nucleus for Planet Formation (NPF) at the University of Valparaíso have discovered a giant planet orbiting around a dead white dwarf star. The planet has been found in the form of a disc of gas formed

from its evaporating atmosphere. The planet is Neptune-like and orbits a star four times its size once in ten days and leaves a comet-like tail of gas comprising hydrogen, oxygen and sulphur after its action. The discovery is the first ever of its kind and suggests that there could be more planets orbiting around dwarf stars yet to be discovered. The star WDJ0914 + 1914 was recognised in a study of ten thousand white dwarfs observed by the Sloan Digital Sky Survey. Till now there is no such evidence that any planet has withstood a star's transition to a white dwarf. The discovery was published in the journal *'Nature'*.

3. Artificial Intelligence and Computers

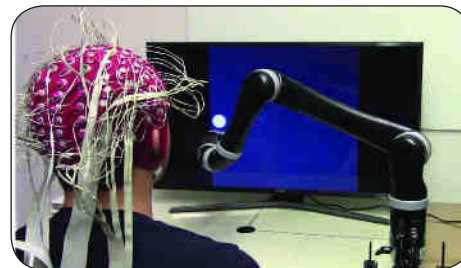
First-ever Successful Mind-controlled Robotic Arm

A group of researchers from Carnegie Mellon University in collaboration with the University of Minnesota has made a major breakthrough in the area of non-invasive robotic device control with the first-ever successful mind-controlled robotic arm non-invasive Brain-computer Interface (BCI) capable of tracking and following a computer cursor. The established framework addresses and improves upon the "brain" and "computer" components of BCI by enhancing the user engagement

and training, and also by the spatial resolution of non-invasive neural data through EEG source imaging. The paper was published in 'Science Robotics'.

First Contactless Cardiac Arrest AI System for Smart Speakers

Researchers at the University of Washington have developed the first contactless cardiac arrest AI system which monitors for cardiac arrest while a person is sleeping. It detects the gasping sound which is mainly heard during cardiac arrests. The system does not require any kind of touch and



functions as an app or skill for smart speakers and smartphones. The team created a tool that accurately detects agonal breathing 97% of the time when a smart device is placed up to 6 meters or about 20 feet away from the user. The findings were published in the Nature journal 'npj Digital Medicine'.

4. International Environment Conferences 2019

International Conference on Basel Convention in Geneva Augmenting Nature

An International Conference on Augmenting Nature by Green Affordable New-Habitat (ANGAN) was held from 9 to 11 September 2019 in New Delhi. The conference focused primarily on achieving Energy Efficiency in the building sector. It was organised by the Bureau of Energy Efficiency (BEE), Ministry of Power in collaboration with GIZ under the INDO German Technical Cooperation Initiative.

The 14th meeting of the Basel Convention, which laid down guidelines on the movement of hazardous waste, concluded in Geneva on 10th May 2019. A key outcome of the meeting was an amendment to the Convention that includes plastic waste in a legally-binding framework, which would make global trade in plastic waste more transparent and better regulated, whilst also ensuring that its management is safer for human health and the environment. However, it

does not bar countries from exporting various categories of plastic waste.

UN Environment Assembly

The 4th session of the UN Environment Assembly (UNEA-4) took place in Nairobi, Kenya. The theme of UNEA-4 was "Innovative Solutions for Environmental Challenges and Sustainable Consumption and Production". Nations unanimously agreed to significantly cut down on single-use plastic products like cups, cutlery and bags by 2030.

5. Physical Sciences

Kilogram Redefined

Based on a historic decision at the General Conference on Weights and Measures in Versailles, France, organised by the International Bureau of Weights and Measures (BIPM), all the SI units would now be defined in terms of constants that describe the natural world. Four fundamental units — Kilogram, Kelvin,

Mole & Ampere —have undergone a change which came into force worldwide on the World Metrology Day celebrated on 20 May 2019.

Quantum Entanglement Captured on Camera for the First Time

In a breathtaking view, for the first time physicists from the University

of Glasgow in Scotland captured on camera a strong form of quantum entanglement known as Bell entanglement giving visual proof of an elusive phenomenon which was once called 'spooky action at a distance' and puzzled Albert Einstein. The results were published in the journal 'Science Advances'.

6. Council of Scientific & Industrial Research-I

First Indigenous High-Temperature Fuel Cell System by CSIR

The Council of Scientific & Industrial Research (CSIR) has launched the first-ever high-temperature indigenous fuel cell on the occasion of the CSIR Foundation Day on 26 September 2019. The fuel cell system has been developed by the CSIR in collaboration with Indian industries under the programme New Millennium Indian Technology Leadership Initiative (NMITLI). The cell will replace diesel generating sets thereby helping reduce India's reliance on crude oil. It will be useful for stationary power applications in small offices, commercial units, datacentres, etc., where reliable power is necessary along with a concurrent necessity for air-conditioning. It will fulfil the requirements of efficient, clean and

reliable backup power generation for telecom towers, remote locations, and will be useful for strategic applications too.

Biodiesel Plant by CSIR-CMERI

CSIR-CMERI (Central Mechanical Engineering Research Institute), Ludhiana, has designed and developed a biodiesel plant that can carry out the conversion of Tung oil from Tung Tree (*Aleurites fordii*) into biodiesel. The oil has various industrial applications such as in ceramic, paint, paper and cloth production. Tung oil (*Aleurites fordii*) has been regarded as a promising non-edible source of biodiesel production. The plant has been tested at CSIR-CMERI. The capacity of the plant is 600 litres/day and it is able to produce biodiesel from any edible and non-edible

vegetable oil irrespective of its FFA (Free Fatty Acids) content.

CSIR-NPL Creates Device for Single-layer Graphene

Researchers at Delhi's National Physical Laboratory (CSIR-NPL) have designed and developed a low-pressure chemical vapour deposition (LPCVD) device that allows high quality, single-layer graphene measuring 4 inches in length and 2 inches in breadth to be grown. The graphene produced is metrology-grade, and can be used in next-generation quantum devices.

The LPCVD device costs about Rs 5,00,000, which is one-tenth of the imported ones. The quality of the single-layer graphene grown using this device is also superior as compared to the imported ones. The research has been published in 'ACS Omega'.

7. Council of Scientific & Industrial Research-II

CSIR-CCMB Develops Antimicrobial Protein "Echamp"

Scientists at CSIR-CCMB (Centre for Cellular and Molecular Biology) Hyderabad, have found a new mechanism in order to inhibit bacterial growth. The research will pave the way for novel antibiotics to fight against infections resistant to drugs.

The scientists isolated an Antimicrobial Protein (AMP) from the milk of a unique egg-laying mammal, Echidna. The extracted protein may serve as a promising alternative to antibiotics used in livestock. The Antimicrobial Protein (AMP) in the milk of the mammal is capable of puncturing the cell membranes of multiple bacterial species thereby destroying the infection. The study has been

published in the journal 'Biochimica et Biophysica Acta-Biomembranes'.

CSIR-NIIST Launches Coir-based Mulching Mats

CSIR-National Institute for Interdisciplinary Science and Technology (CSIR-NIIST) has developed coir-based mulching mats which are biodegradable and a greener alternative to plastic. These mulching films were developed under a collaborative research project with the National Coir Research and Management Institute (NCRM), Government of Kerala, Kerala.

Process Developed to Extract Potash from Spent Wash

A spent wash management technology developed by CSIR-Central Salt

and Marine Chemicals Research Institute, Bhavnagar will enable alcohol distilleries to recover valuable byproducts from their effluents. The sugarcane (molasses)-based alcohol distilleries generate eight to 15 litres of spent wash to produce a single litre of ethanol. The spent wash is a highly polluting liquid residual waste, which poses serious environmental hazards. The Institute has developed the process to extract potash from the liquid effluent (spent wash). The potash can be used as a fertilizer. This will result in foreign exchange savings to the tune of Rs. 500 to Rs.700 crores a year through reduced dependence on fertilizer imports.

(Source: Science Reporter- January 2020)

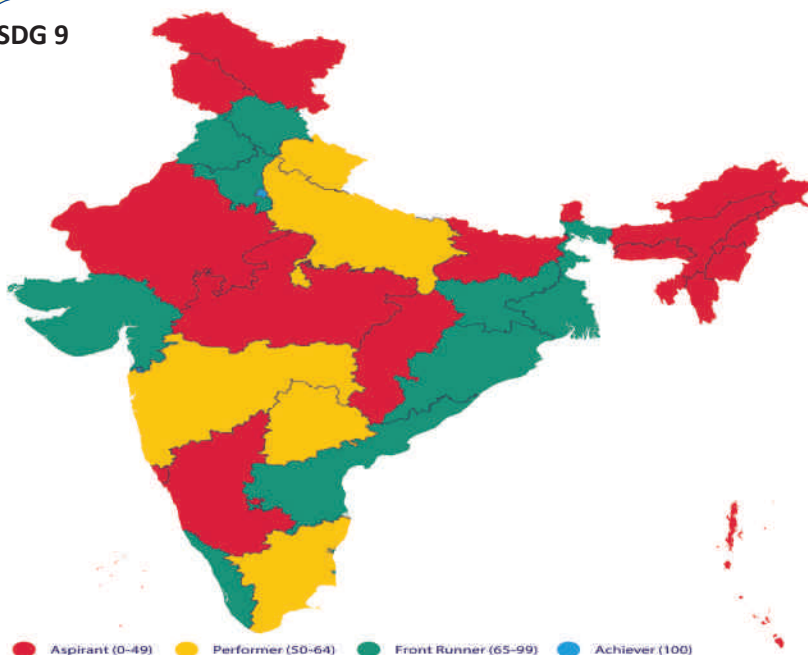


SEVEN IMPORTANT CONCEPTS THROUGH GRAPHICS

SDG India Index 2019-20

1. Performance of States/ UTs on SDG 9 (Industry, Innovation and Infrastructure) and SDG 10 (Reduced Inequalities)

SDG 9



Achiever

Dadra and Nagar Haveli
Daman and Diu
Delhi
Jharkhand
Punjab
West Bengal
Andhra Pradesh

Front Runner

Gujarat
Kerala
Haryana
Odisha
Himachal Pradesh
Puducherry
Chandigarh

Performer

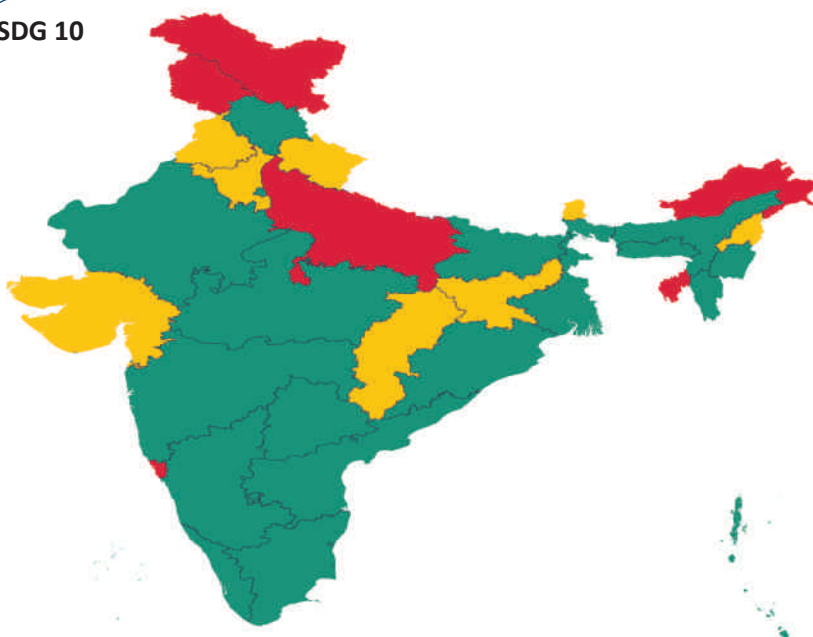
Uttar Pradesh
Telangana
Maharashtra
Uttarakhand
Tamil Nadu

Aspirant

Tripura
Bihar
Assam
Goa
Madhya Pradesh
Manipur
Karnataka
Chhattisgarh
Rajasthan
Arunachal Pradesh
Sikkim
Nagaland
Meghalaya
Mizoram
Jammu & Kashmir and Ladakh
Andaman and Nicobar Islands
Lakshadweep

● Aspirant (0-49) ● Performer (50-64) ● Front Runner (65-99) ● Achiever (100)

SDG 10



Front Runner

Telangana
Manipur
Himachal Pradesh
Meghalaya
Kerala
Bihar
West Bengal
Karnataka
Maharashtra
Rajasthan
Odisha
Andhra Pradesh
Madhya Pradesh
Assam
Mizoram
Tamil Nadu
Andaman and Nicobar Islands
Lakshadweep
Puducherry
Daman and Diu
Delhi

Performer

Jharkhand
Sikkim
Nagaland
Chhattisgarh
Gujarat
Uttarakhand
Haryana
Punjab

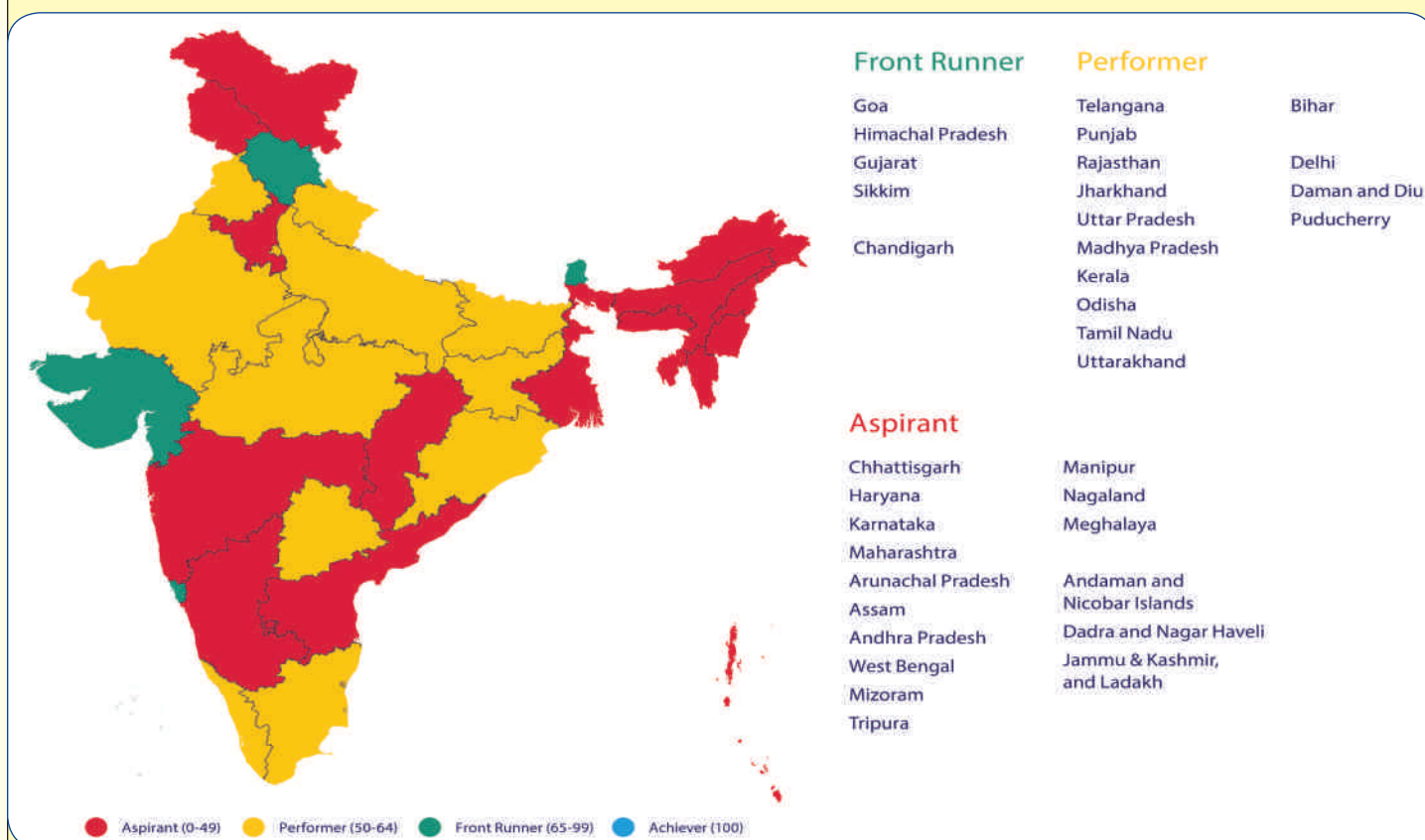
Aspirant

Uttar Pradesh
Tripura
Arunachal Pradesh
Goa
Jammu & Kashmir, and Ladakh
Chandigarh

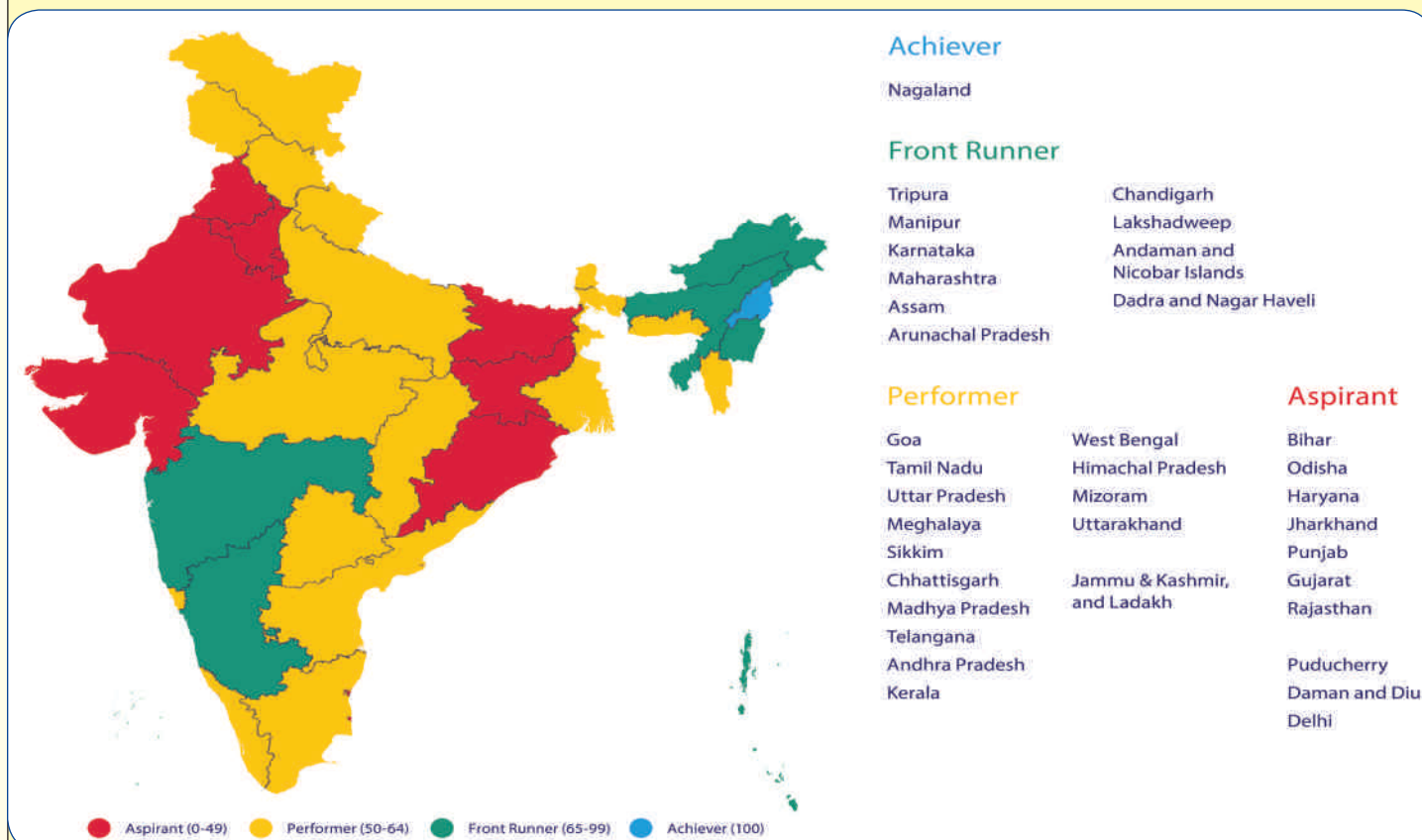
Dadra and Nagar Haveli

● Aspirant (0-49) ● Performer (50-64) ● Front Runner (65-99) ● Achiever (100)

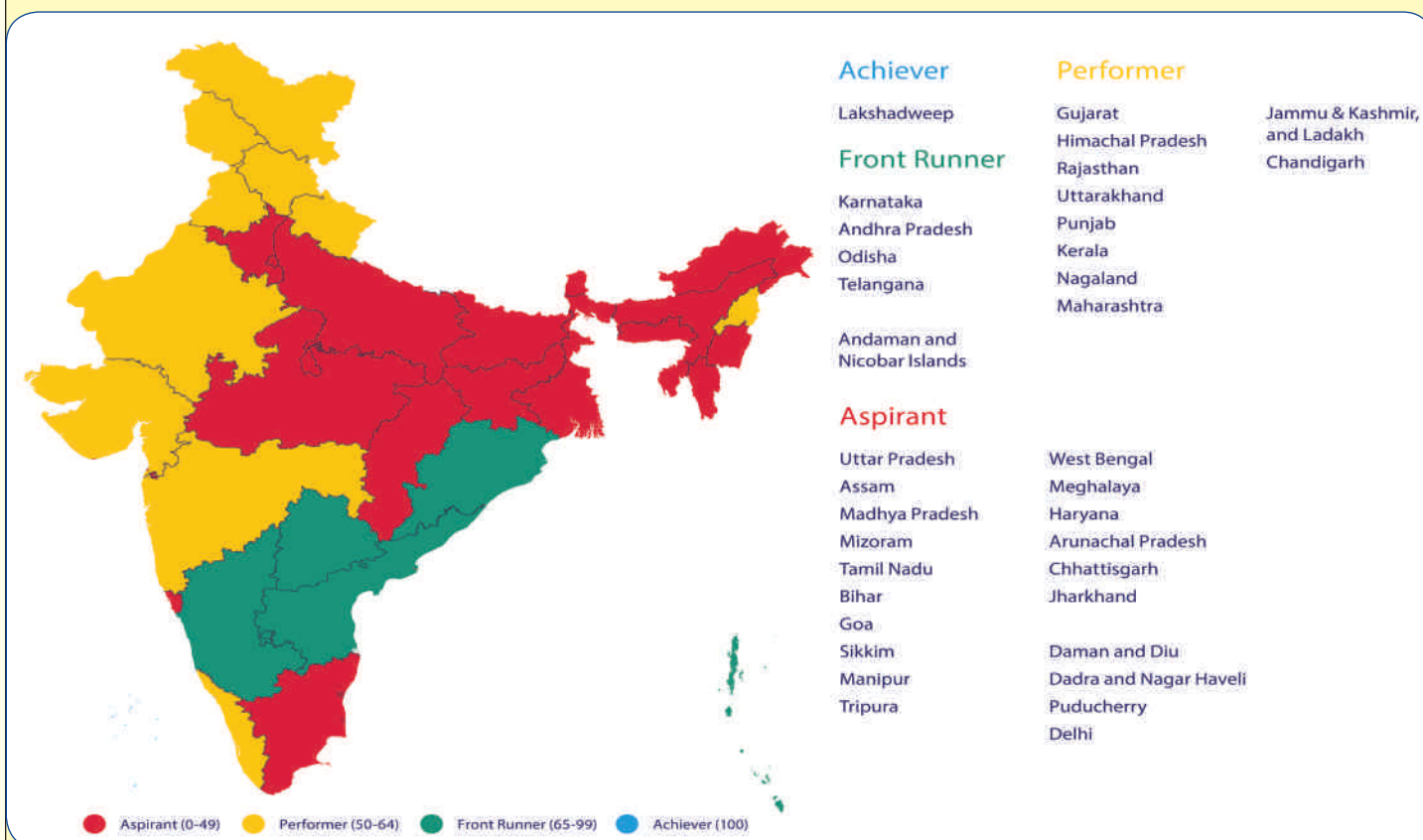
2. Performance of States/ UTs on SDG 11 (Sustainable Cities and Communities)



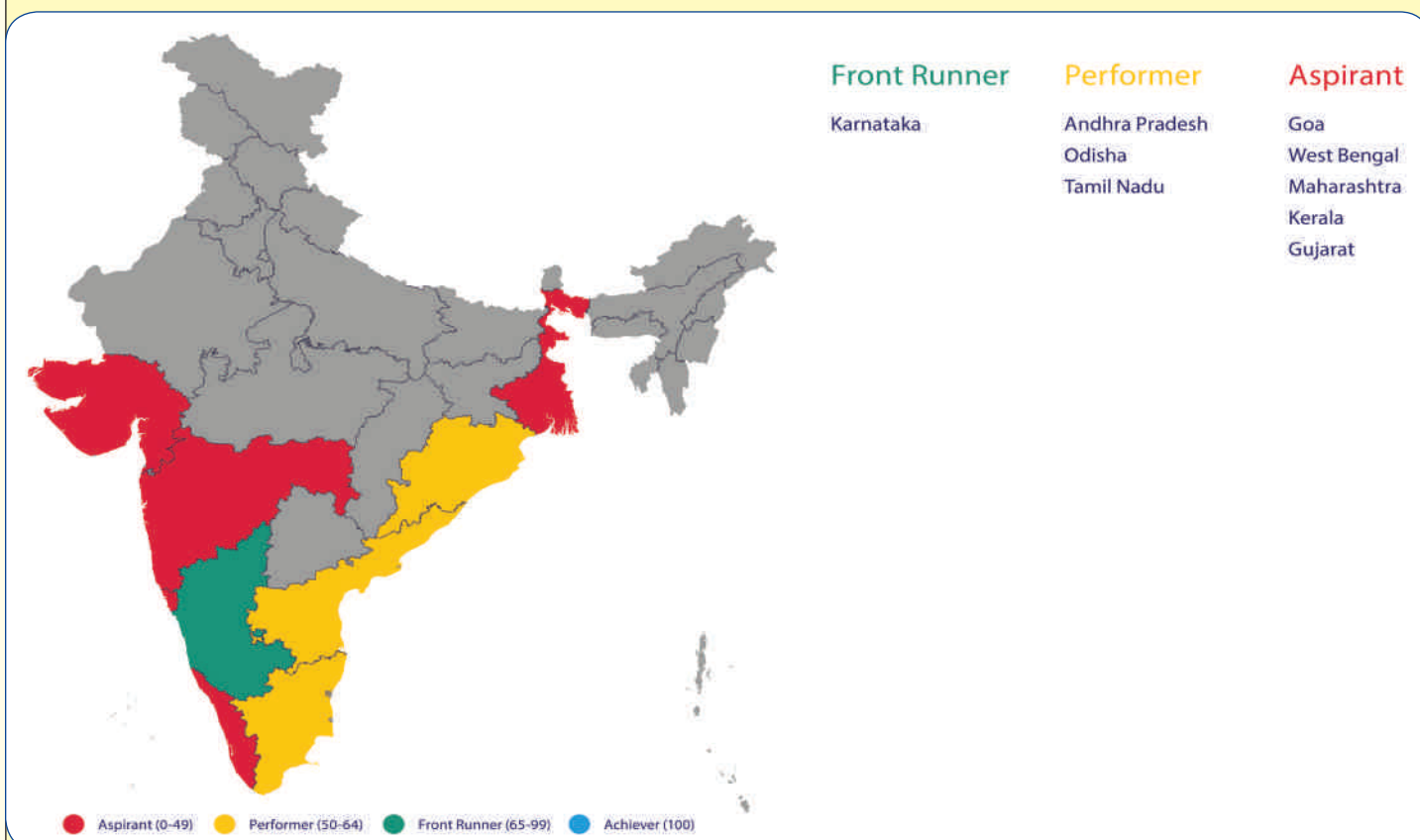
3. Performance of States/ UTs on SDG 12 (Sustainable Consumption and Production)



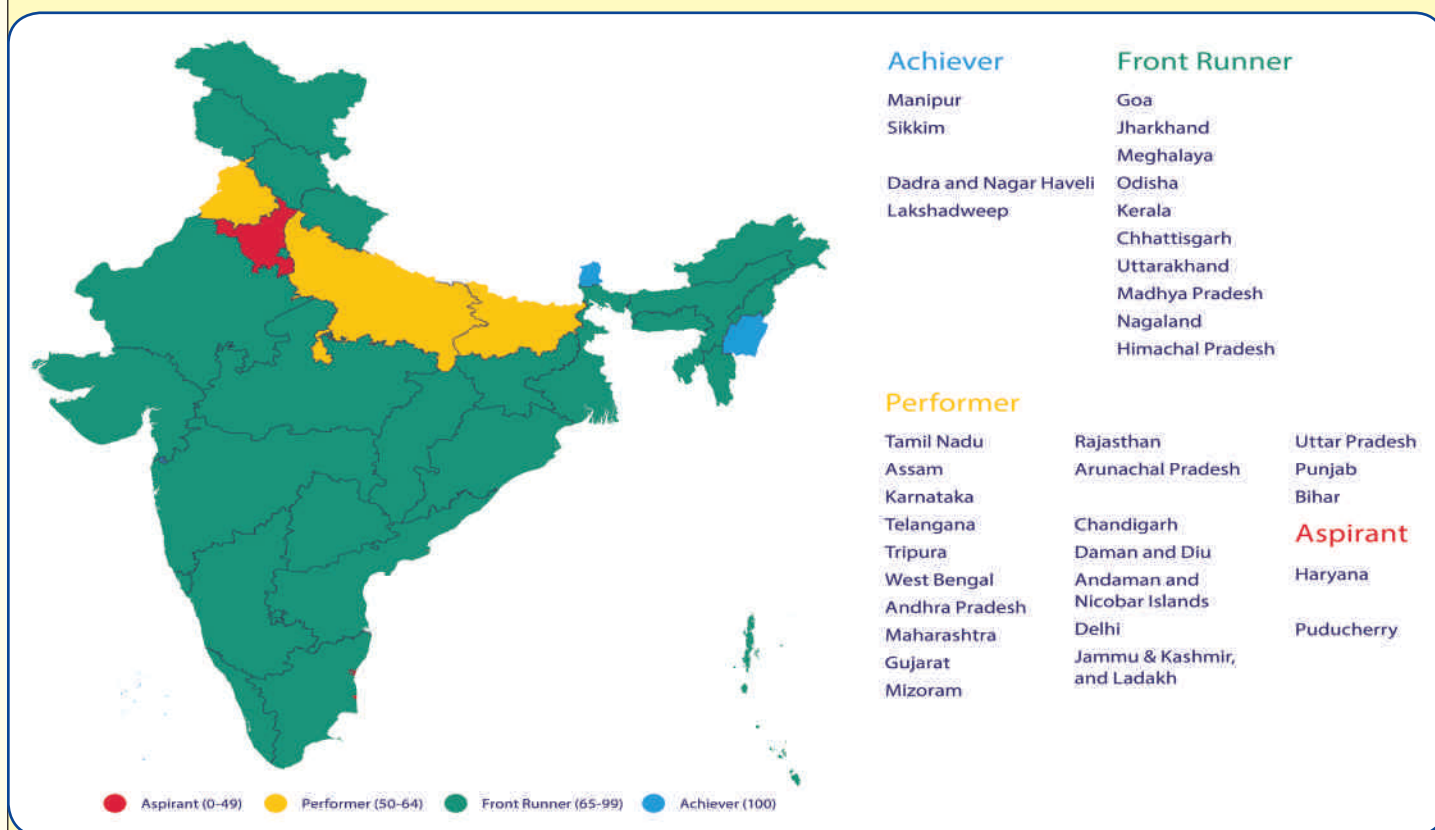
4. Performance of States/ UTs on SDG 13 (Climate Action)



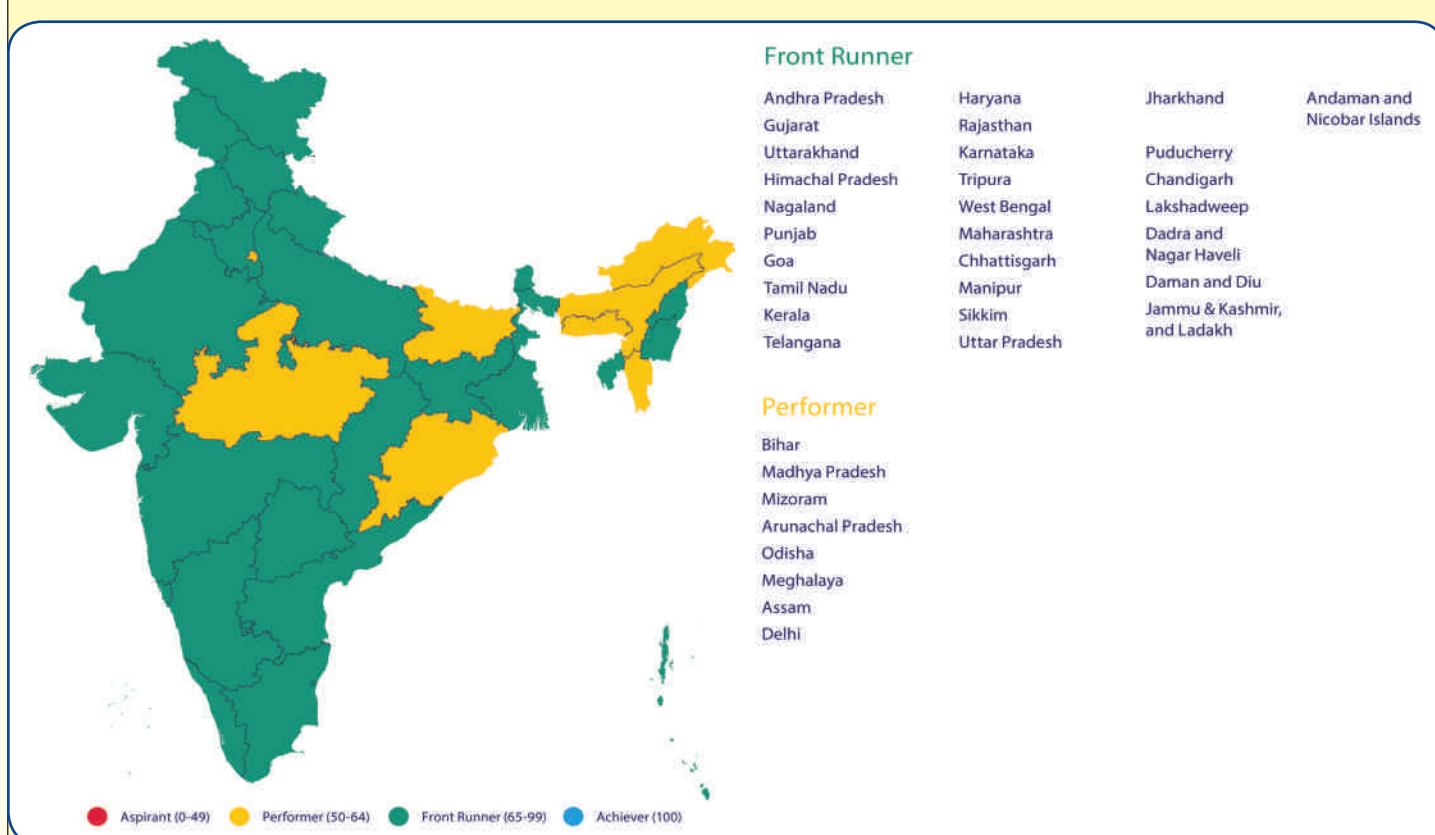
5. Performance of States/ UTs on SDG 14 (Life Below Water)



6. Performance of States/ UTs on SDG 15 (Life on Land)



7. Performance of States/ UTs on SDG 16 (Peace, Justice and Strong Institutions)



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**Mohit Mehrana
(Rank-1)**



**Jeetinder Joshi
(Rank-2)**

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AN INTRODUCTION

Dhyeya IAS, a decade old institution, was founded by Mr. Vinay Singh and Mr. Q.H. Khan. Ever since its emergence it has unparalleled track record of success. Today, it stands tall among the reputed institutes providing coaching for Civil Services Examination (CSE). The institute has been very successful in making potential realize their dreams which is evidents from success stories of the previous years.

Quite a large number of students desirous of building a career for themselves are absolutely less equipped for the fairly tough competitive tests they have to appear in. Several others, who have a brilliant academic career, do not know that competitive exams are vartly different from academic examination and call for a systematic and scientifically planned guidance by a team of experts. Here one single move my invariably put one ahead of many others who lag behind. Dhyeya IAS is manned with qualified & experierenced faculties besides especially designed study material that helps the students in achieving the desired goal.

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Distance learning Programme, DSDL, primarily caters the need for those who are unable to come to metros fro economic or family reason but have ardent desire to become a civil servant. Simultaneously, it also suits to the need of working professionals, who are unable to join regular classes due to increase in work load or places of their posting. The principal characteristic of our distance learning is that the student does not need to be present in a classroom in order to participate in the instruction. It aims to create and provide access to learning when the source of information and the learners are separated by time and distance. Realizing the difficulties faced by aspirants of distant areas, especially working candidates, in making use of the institute's classroom guidance programme, distance learning system is being provided in General Studies. The distance learning material is comprehensive, concise and examoriented in nature. Its aim is to make available almost all the relevant material on a subject at one place. Materials on all topics of General Studies have been prepared in such a way that, not even a single point will be missing. In other words, you will get all points, which are otherwise to be taken from 6-10 books available in the market / library. That means, DSDL study material is undoubtedly the most comprehensive and that will definitely give you added advantage in your Preliminary as well as Main Examination. These materials are not available in any book store or library. These materials have been prepared exclusively for the use of our students. We believe in our quality and commitment towards making these notes indispensable for any student preparing for Civil Services Examination. We adhere all pillars of Distance education.

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