

PERFECT 7

WEEKLY

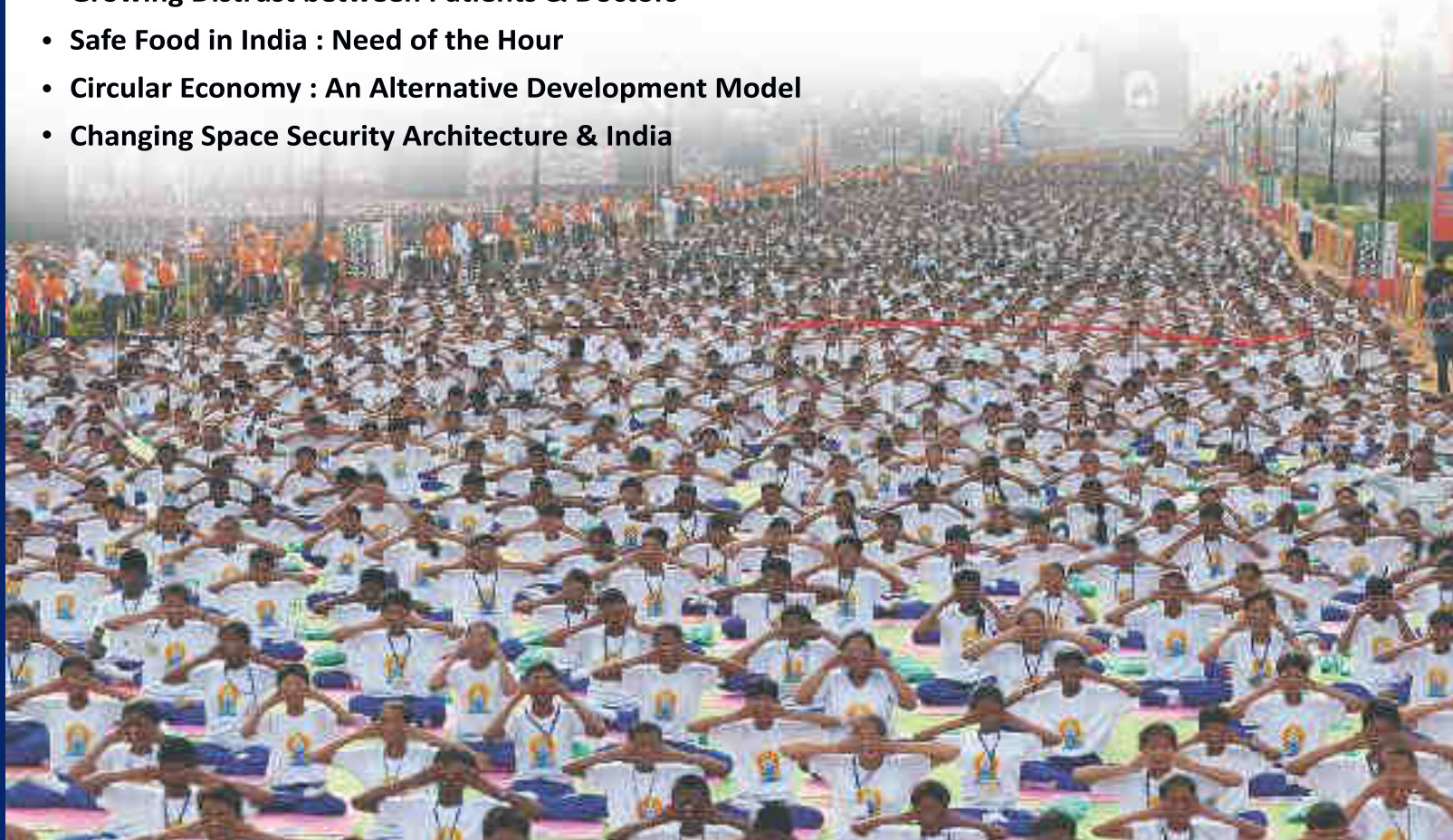
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July: 2019 / Issue-01

INTERNATIONAL DAY OF YOGA 2019

Yoga for Climate Action

- Growing Water Crisis & Its Management in India
- The Nuances of Federal Polity in India
- Growing Distrust between Patients & Doctors
- Safe Food in India : Need of the Hour
- Circular Economy : An Alternative Development Model
- Changing Space Security Architecture & India



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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.

I extend best wishes for the success of this endeavor.

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 around 100 issues and more are yet to come.

Ashutosh Singh

Managing Editor

Dhyeya IAS



PREFACE

Dhyeya family feels honoured to present you a pandora box 'Perfect 7'. '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

The Weekly Issue

Perfect 7

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News Paper



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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. INTERNATIONAL DAY OF YOGA 2019 : YOGA FOR CLIMATE ACTION

Why in News?

On 21st June, 2019, the fifth annual International Day of Yoga (IDY) was celebrated all over the world with theme “Yoga for Climate Action”.

Introduction

Practised in various forms around the world and continuing to grow in popularity, yoga is essentially an ancient physical, mental and spiritual practice that originated in India possibly around the 5th century BC. It is, of course, an effective workout. But it is much more than that. It is a comprehensive approach to achieve wellness. It recognises the vital connection between the body and the mind. It aims for balance and equanimity, peace, poise and grace. It is a sublime expression of the quest for excellence, for synthesis and harmony. It is an eloquent epitome of the Indian worldview.

The word yoga comes from Sanskrit and means “to join” or “unite”. The science of yoga joins different facets of human existence. The Indian seers have unequivocally emphasised physical fitness as the first and the crucial first step towards human progress. “Shareeramadyam khalu dharma saadhanam”(a healthy body is the prerequisite for achieving higher goals). Recognising that “yoga provides a holistic approach to health and well-being” and also that wider dissemination of information about the benefits of practising yoga would be

beneficial for the health of people all over the world, the United Nations (UN) proclaimed June 21 as the International Day of Yoga via Resolution 69/131.

Looking at the pictures streaming in on social media from across six continents, the fact that India has been able to persuade the world about the idea of Yoga as a means to health is now beyond doubt. This year too, on 21st June, over 170 countries around the world celebrated the fifth International Yoga Day. That is soft power – the ability to influence without a coercive force. New Delhi’s soft power achievement around Yoga has been to reclaim it as an Indian idea – there are hundreds of copyrights around Yoga globally, several trademarks that were born in India are now owned by outsiders, ironically on an idea that is free – through the International Yoga Day.

Characteristics of Yoga

An idea of Indian origin, Yoga is an open source, free to use technology by all, with no exclusions – an extension of the system of knowledge creation in ancient India. Apart from becoming a global transformative force, Yoga has now become India’s most impactful public good.

In economic terms, Yoga is non-rival (one soul’s consumption does not affect another soul’s opportunity), and it is non-excludable (one soul cannot deny another soul the opportunity to consume it). The idea of a ‘soul’ makes Yoga uniquely Indian, as the practice of Yoga is not limited to bodily asanas,

movements or breathing; these are tools for a deep dive within. That ‘within’ is the soul.

Importance of Yoga in Present Time

We are living in times of great challenges, of unprecedented change in unpredictable directions. The way we live, learn, work and enjoy is changing rapidly. Lifestyles are getting transformed through technology. We are making significant progress in our relentless quest for economic growth and prosperity, in enhancing convenience and comfort, in enriching our knowledge and skills, in enlarging our choices for entertainment and education. However, as the global community started drafting its development agenda in 2015, it realised that we have been missing a big component of “development”. There was a need for balance. There was a need for caring for the poor. There was a need for caring for the planet. There was a need to look for gross national happiness in addition to gross national product. There was a need to avoid excesses, avoid reckless exploitation of nature, avoid excessive consumption. Our individual lifestyles and patterns of global governance needed to be rebooted. Sustainability has become the new mantra. “Balance” is at the heart of sustainability. And that “balance” in all spheres starting with physical well-being is what yoga is all about.

The 'Bhagavad Gita' makes two important statements: "yoga - sthah kuru karmaani" (Do your duty with a yoga approach) and "samatvam yoga uchyate" (balance is the essence of yoga). Yoga is an approach to life that focuses on physical balance, mental equilibrium and working towards a harmonious synthesis of diverse elements including the protection of the environment.

As such, yoga can promote solidarity, social integration, tolerance, justice and peace. It teaches us a holistic vision of the world, encouraging us to live in harmony with ourselves, society and nature. This is of obvious relevance for our efforts to combat the intolerance that is so prevalent across today's global landscape. And it has a valuable contribution to make in addressing climate change, the defining issue of our time, by inspiring us to shift away from unsustainable practices towards inclusive, green growth, conscious consumption and more sustainable lifestyles. Quite appropriately, the theme of the 2019 International Yoga Day is "Climate Action".

In short, it is about the tensions between the needs and wants. While change can start within ourselves, observances such as the International Day of Yoga have the potential to lift yoga from an individual well-being practice to joint, global action. By practicing yoga, we can promote values that inspire a peaceful, environmental stewardship for the betterment of society and the Earth.

Yoga and Health Benefit

Yoga's benefits toward health are slowly being realised the world over. As the world makes the epidemiological transition and the contribution of most of the major non-communicable disease groups to the total disease burden is increasing, it is important that individuals make healthier choices

and follow lifestyle patterns that foster good health.

As Harvard Medical School experts have recognised, yoga, a combination of four components — postures, breathing practices, deep relaxation, and meditation — has a significantly positive impact on health. It can alleviate arthritis pain, reduce the risk of heart disease, relieve migraines and fight osteoporosis, multiple sclerosis or fibromyalgia. A study showed how yoga increased blood vessel flexibility by 69 per cent and even helped shrink arterial blockages without medication.

Since yoga works across multiple systems in our body, Harvard researchers have documented that it helps to rev up immunity and decrease the need for diabetes medications by as much as 40 per cent. Yoga, according to these researchers, does so much for one's health and well-being that people who do yoga use 43 per cent fewer medical services and save anywhere from \$640 to more than \$25,000 a year!

Opportunities for India

Yoga has gained admiration and captured peoples' imagination across the world, and thus has become a source of India's soft power. Popularizing yoga in Europe and America is accredited to a few names like Paramhansa Yogananda, B. K. S. Iyengar, K. Pattabhi, and T. K. V. Desikachar. The overwhelming number of yoga schools in America and Europe and many parts of Asia are a testimony to the popularity of India's rich cultural traditions. Yoga is also a part of the curriculum of some educational institutions in Europe and America. Thus, Yoga has opened a lot of employment opportunities for trained professionals in yoga across the globe.

Further, in a world which is increasingly becoming more fitness aware and organic, traditional and natural ways of staying healthy are the new fad (especially in the West,

which also has significant purchasing power), the thrust on yoga will provide opportunities to India to boost its share in international trade.

Under the yoga rubric, the Indian government is trying to market and promote related products such as ayurveda, pharmaceuticals, medical devices and handicrafts as a part of the natural health and wellness package. This is expected to provide boost to the domestic Micro, Small and Medium Enterprises (MSME) sector as well.

India is already a major hub of low cost medicine, and medical tourism is a fast growing sector. By promoting yoga and traditional medicines systems within a composite marketing exercise, India can be projected as not only the 'pharmacy of the world', but also as a source of natural healthcare and fitness systems.

At last, Yoga could be a big attraction for tourists coming to India. The 'tourist circuits' of India should add a 'yoga/spiritual circuit' to their list. This would further enhance India's image as a peace-loving country, apart from generating revenue, increasing foreign exchange, and providing employment to local people.

The Role of Yoga in Indian Tourism

People from all over the globe move towards India for Ayurveda, yoga and meditation in Rishikesh, Uttaranchal, which is practiced for centuries. In fact, India quickly emerged as a health tourism destination because of them. From time immemorial, India has been identified for its spirituality, yoga and religious tolerance and its secular nature. India is called the "Yoga Bhoomi" and the gate of heaven. India is known throughout the world for its ancient curative practices and substitute therapies. Over thousands of years, we have to get our own systems of indigenous medicinal and healing practices such as Ayurveda,

naturopathy and pranic healing, to name a few. It is no wonder that people from around the world turn to the Indian subcontinent for orientation towards a more spiritually satisfying way of life.

However, India has not been able to realize the full potential of Yoga in growth of our tourism industry. Places such as Rishikesh, already known as the world's yoga capital, still has a lot of potential to attract tourists, especially foreign tourists who visit India to study yoga and break up with life.

Challenges Ahead

The Ministry of Ayurveda, Yoga & Naturopathy (AYUSH) which oversees the standardisation of yoga on behalf of the government, asserts that yoga is a practical discipline that develops one's inherent power to achieve a balanced life that can be freed of stress, pain and disease. While undoubtedly, there is a case to be made for some benefits, we should ask ourselves that is climate action simply in need of a personality transformation that can be brought about by a mix of standardised postures, breathing, chants and meditative moments? The hard challenges of attenuating climate change still remain mostly in the realm of politics and economic interests, rather than soft choices over culture and what yoga pants to wear to an IDY event.

Further, AYUSH's Common Yoga

Protocol purportedly represents the paragon of moral-political economies that can achieve the United Nations' 17 sustainable development goals (SDGs) codified in Agenda 2030. This forms the rubric for assessing and motivating sustainable development across the economy, society and environment. While such social media campaigns exist, like '#Tourism4SDGs' and Sadhguru's '#Yoga4SDGs', their appearance hides the fact that many vulnerable groups are excluded and disadvantaged.

Yoga has become a global phenomenon for commercial purposes. For example, the yoga DVD by fitness guru Jillian Michaels "Yoga Inferno," and books like Slim Calm Sexy Yoga by American model-turned-yoga instructor Tara Stiles have tremendous circulation across the globe. These resources deviate from the original teachings of yoga, losing the spiritual characteristics as enshrined in sacred Indian treasured texts like the Vedas. Further, there have been attempts to patent various yogic exercises, for example, the Indian-American yoga guru Bikram Choudhary tried to obtain copyrights on his sequence of 26 poses, but the validity of such claims regarding intellectual property rights needs to be examined. Is it appropriate to trademark individual names within yoga, considering that yoga is designed to improve health

and originates from traditional Indian knowledge? However, in 2001, the Indian government established the "Traditional Knowledge Digital Library" to prevent foreign claimants from patenting traditional Indian knowledge in this way. But still, issue of copyright poses challenge to yoga in way of becoming as public good.

Conclusion

Today, yoga is thoroughly globalised phenomenon; yoga has taken the world by storm and is gaining popularity day by day. In short, yoga suggests a number of ways to achieve a calm peaceful mind. To get rid of the diseases one needs to cultivate the habit to culture the mind. Happiness is that state of mind which positively brings about a change in once attitude towards our self, others and life at large. So let us all make it a habit to bring yoga to our day-to-day life.

General Studies Paper- I

Topic: Indian culture will cover the salient aspects of Art Forms, Literature and Architecture from ancient to modern times.

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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2. GROWING WATER CRISIS & ITS MANAGEMENT IN INDIA

Why in News?

A water crisis of epic proportions looms as taps run dry across urban and rural India. In some parts of the country, private companies are asking their employees to work from home since they have run out of water. However, even as most parts of India reel under an unprecedented water shortage, the

Indian government has dismissed the concern as the result of "media hype."

Introduction

According to the NITI Aayog report, India is the world's biggest groundwater extractor. As things stand, it forecasts that 21 cities, including Delhi, Bengaluru, Chennai and Hyderabad, will run out of groundwater by 2020;

also, 40% of our citizens will have no access to drinking water by 2030. As many as 600 million people are already estimated to face "high-to-extreme" water stress every year.

Moreover, critical groundwater resources, which accounted for 40% of India's water supply, are being depleted at "unsustainable" rates and up to 70% of India's water

supply is “contaminated”. According to the information provided by the government to Parliament reveals that discharge of toxic elements from industries and landfills and diffused sources of pollution like fertilizers and pesticides over the years has resulted in high level of contamination of groundwater with the level of nitrates exceeding permissible limits in more than 50% districts of India. Apart from nitrate contamination, the presence of fluoride, iron, arsenic and heavy metals has also touched worrying levels. A 2018 report from global advocacy group WaterAid put India at the top of its list of countries with the worst access to clean water close to homes—163 million Indians live this way.

An analysis of the water levels in 91 reservoirs across India as of June 15 showed that in 85 of them, the water level is below 40% of the capacity and in 65 it is below 20%. Only two out of 17 dams in Maharashtra hold more than 25% of water capacity. Seven are at 0%. Similarly the Ukai dam, which supplies water to Gujarat’s Surat city, holds only 3% of its capacity. And with a cyclone drifting away from the Gujarat coast, the slow pace of the monsoon has raised concerns.

This year, some parts of Karnataka shut schools for an extra week on account of water scarcity. Incidents of violence over water have been reported from across the country. In Madhya Pradesh, which has had several such clashes, the state government asked superintendents of police of all 52 districts to guard water sources. This is unprecedented. In another instance, IT companies along the Old Mahabalipuram Road in Chennai are asking employees to work from home as these companies don’t have water to sustain operations. All these examples portend a future of worsening strife over water which many of us take for granted.

Reason for the Present Crisis

The present water crisis had been in the making for decades due to our myopic view of development. All manner of structures have encroached upon lakes and rivers with impunity, while industrial waste and sewage inflows render various water bodies toxic. The problem is compounded by the large-scale adoption of thermocol and plastic plates and glasses even in the countryside, the stuff of non-biodegradable waste that ends up killing rural pools of water that have traditionally served entire villages. To put it simply, there’s too much demand and not enough supply. India’s burgeoning population woes aside, climate change is seen as a major factor in the country’s water crisis. Scorching summers and shortened winters have resulted in reduced snow cover and retreating glaciers in the Himalayas—the ice melt from these areas is what feeds the country’s Northern rivers. Add to that fickle monsoons that threaten to disrupt long-established crop patterns and have a recipe for disaster in many parts of the country.

Then there’s agriculture, which, by some estimates, accounts for 90% of India’s water consumption. Farmers are sometimes slow to change what they sow and continue to grow thirsty crops like rice and sugarcane in parched regions. They meet these irrigation demands by indiscriminately extracting groundwater, which some say accounts for a quarter of the world’s groundwater usage.

This has led to a substantial drop in the levels of India’s water table, which is a major concern. There has been a 61% decline in the country’s water levels from 2007 to 2017. Rajendra Singh, a well-known water conservationist nicknamed “India’s waterman,” has said that over 70% of the country’s groundwater is in “overdraft”, implies that more water is consumed than is replenished.

Some inefficiencies in the water sector have led to challenges with respect to important outcomes such as rainwater storage, and greywater (domestic non-faecal waste-water, kitchen or bathing waste water) treatment and reuse. Presently, India captures only eight percent of its annual rainfall, among the lowest in the world. Lack of proper maintenance of existing infrastructure causes further losses of almost 40% of piped water in urban areas. A study of Delhi’s piped water systems a few years ago found that 40% of the city’s water is lost due to pipe leaks and thefts via unauthorized connections. Treatment and reuse of greywater is almost non-existent.

Constitution of the Ministry of Jalshakti – Key Institutional Reform

The constitution of the new Jal Shakti Mantralaya is the first concrete step taken by the Central government towards a holistic and integrated perspective on water. This bold institutional step has been taken by the Central government by integrating the erstwhile Ministry of Water Resources, River Development and Ganga Rejuvenation with the former Ministry of Drinking Water and Sanitation, and has led to the formation of a single new ministry focused on water. This is a major step towards the consolidation of the management of water resources with delivery of drinking water and sanitation — a much-needed step in the direction of ensuring India’s water security — as well as a thrust towards the goal of providing safe and adequate piped water supply for all households. Thus, the idea behind the creation of the new ministry — “to approach the issue of water management holistically and ensure better coordination of efforts” — is salutary.

Until now, the institutional landscape for water in India has been somewhat fragmented, with about

seven ministries and more than 10 departments having a say on different aspects of water management and use. Not only have these had some overlapping roles and responsibilities, but no single body had the ultimate oversight and authority necessary to resolve conflicting issues and take the necessary decisions. This led to these ministries and departments working in silos. While the NITI Aayog had made a solid start at integrating the sub-sectors of water by creating an integrated water management index and ranking states on this basis, the creation of the new Jal Shakti Mantralaya is a big bang governance reform which will have a permanent and positive impact on integration in the water sector.

Challenges before Ministry of Jalshakti

Seventy per cent of the country's water aquifers are polluted. Much of this owes to the Central Groundwater Board's (CGWB) aggressive projects to tap groundwater. These endeavours that began in the 1970s did not pay adequate attention to the constraints placed by the country's geology: hard rocks constitute more than 60% of the surface area of underground water sources. This means that they have poor permeability, which constrains their re-charge by rainfall. The Jal Shakti ministry's endeavour to provide clean water will require a paradigm shift from the CGWB's groundwater-centred approach.

The new Jal Shakti Ministry has begun work by announcing that the government intends to provide piped drinking water to every household by 2024. While 81% of all habitations are currently estimated to have access to 40 litres of water per day through some source, only about 18 to 20% of rural households in India have connections for piped water supply; hand pumps are their main source of potable water. Piped water schemes in rural areas

have been dogged by problems of infrastructure maintenance: power fluctuations often damage motors and pipes are prone to leaks. Last year, a Comptroller and Auditor General of India (CAG) report pointed out that "poor execution" has marred the National Rural Drinking Water Programme's attempt to provide piped drinking water to 35% of the country's rural households. The auditor pointed out that, in most states, the panchayats were not provided with the informational know-how to operate the expensive piped water systems. The Jal Shakti ministry's challenge will be to ensure that such mistakes are not repeated. It will have to join several dots.

What can be Done?

Considering the fact that one cannot increase the amount of rainfall that the country receives, the government and the society at large should introspect and check whether we as a nation are institutionally organized to face this challenge. There are people who argue that the Centre should take a greater role- there is also a provision in the Constitution which allows the Centre to play a stronger role and we also know that water is a highly emotional issue (especially when we look at inter-state conflicts). Thus, one would like to see a beginning being made by some form of constructive cooperative arrangements at the river basin level, so that states don't feel threatened. It could be constructive arrangements focussed on conservation. One should also focus on aquifer planning- this is absolutely vital. In India, we know very little as to what the geography of our aquifers are. In the South of India, there are defined aquifers, but in the North of India, the entire Indo-Gangetic river basin is an aquifer. The government of India has started the process of mapping the aquifers, but this needs to be taken forward in a mission mode.

Bihar has rolled out the "Har Ghar Nal Ka Jal" scheme in September 2016. Its target is to provide piped water to 20 million households over a five-year period, up from the existing 0.8 million households. In this scheme, people pay a basic user fee of Re 1 a day or Rs 30 monthly for the service provided. The water supply is done in the most decentralised manner taking the ward of a gram panchayat as the basic unit which could include as few as 100 households. The water source, in this case, is groundwater, which is abundant in Bihar, and is supplied using tube wells.

Considering the overall capital intensive nature of water supply, a user fee will have to supplement the funding by the Centre and states. Thus, the Bihar model of water supply can be considered for implementation in areas where groundwater tables are high, which include many states along the Gangetic plains from Punjab to Assam.

In water stressed areas, especially in the designated dark blocks and in areas affected by water quality issues, surface water based multi-village schemes need to be designed, while in groundwater rich areas, single village, groundwater-based schemes with end-to-end source sustainability measures should be encouraged. These schemes also need to have provisions for rainwater harvesting through household or community storage, which can also be used for recharging groundwater. Other local methods of water storage and conservation must also be encouraged. A good example of local approaches to developing infrastructure for storage of water is seen in Dewas district in Madhya Pradesh. Here, through government support to farming communities for building ponds as alternative storage and supply sources, the district has achieved a 6 to 40 feet rise in the water table, even while increasing irrigated area by 120-190%.

Another area of focus for water conservation in each drinking water scheme is developing infrastructure for collection and basic treatment of domestic non-faecal waste-water, kitchen or bathing waste water — also called greywater — which typically accounts for nearly 80% of the by-product of all domestic water. This may be done through simple waste stabilisation ponds, constructed wetlands and similar local infrastructure projects in order to recycle this water for agriculture, the sector that consumes 80% of our water.

Some states, like Gujarat, are leading the efficient use of agricultural water by bringing in micro-irrigation to over six lakh farmers, 50% of which are small and medium ones. The Andhra Pradesh government is also prioritising water efficiency in agriculture, by earmarking Rs 11,000 crore to bring 40 lakh acres of land under micro-irrigation over the next five years. If these measures are combined with reuse of greywater for agriculture, it will result in a significant reduction of demand from our water resources.

One of the priorities of the new government is to provide piped water supply to all rural households by 2024 in a sustainable manner. The Jal Shakti Mantralaya will need to promote decentralised, but integrated, water resource management and service delivery, with a key focus on water conservation, source sustainability, storage and reuse wherever possible, by involving the communities themselves, as they are the primary stakeholders. There are important lessons to be learned from the best practices of decentralised planning for water conservation such as in Hiware Bazaar, Maharashtra and the Swajal model of community-based drinking water in Uttarakhand — which need to be scaled up.

Behavioural Changes

Raising awareness and changing perceptions on water also needs to be an important priority. Even today, water is regarded as an infinite resource and is abundantly wasted in many parts of the country, while others suffer drought-like conditions. Behaviour change communication initiatives for both internal and external stakeholders will be critical in changing attitudes towards water. All stakeholders, from state governments to citizens, must be taken on board and a national consensus will have to be built. To that effect, all integrated water management approaches would do well to borrow from the effective behaviour change communication initiatives of the 'Swachh Bharat Mission' and attempt to create an army of grass roots motivators on water, on the model of the swachhagrahis for sanitation. Initiatives to strengthen the capacity of this field force, sarpanches, and block and district officials are already underway, but there is need to pursue these initiatives on more vigorous scale.

It is a collective responsibility of the government and people of the country to save water and contribute to increasing the groundwater levels. The need of the hour, therefore, is to adopt innovative practices of groundwater augmentation by rainwater harvesting and artificial recharge, promoting water use efficiency, recycling and re-using water and creating awareness through people's participation in the targeted areas resulting in the sustainability of groundwater resources development, adequate capacity building amongst the stakeholders, etc. It is here that the responsibility of every citizen comes in, to make every effort locally to conserve, manage and augment our water resources.

Water Management – Global Example

Israel is a poster child for sustainable water consumption in the world. The largely arid country has implemented a centralized water management system, set up desalination plants, encouraged the use of treated waste water for farming and propagated the idea of drip irrigation, which involves dripping water onto the roots of crops rather than flooding entire fields. As a benchmark, Israel treats 100% of its used water, and recycles 94% of it, meeting more than half of its irrigation needs through this reused water.

Similarly, Singapore has been very smart about meeting its water needs efficiently. In addition to desalination and the use of recycled waste water, the city-state gives priority to building reservoirs and catchments to collect as much natural water as possible. According to the government, water catchment areas now cover two-thirds of Singapore's surface area, up from half in 2011.

Conclusion

One of the biggest challenges of the 21st century is – the growing water crisis. Over time, the traditional and effective practices of water conservation in our country are disappearing. Houses have come up over ponds and lakes, and the vanishing water sources have accentuated the water crisis for the poor. In view of the growing impact of climate change and global warming, water crisis is likely to aggravate further. Today, the need of the hour is that the way the country has shown seriousness about 'Swachh Bharat Abhiyaan', the same seriousness be shown in 'Water Conservation and Management'.

We must conserve water for our children and future generations. The creation of the new 'Ministry of Jalshakti' is a decisive step in this direction, which will have far-reaching benefits. Through this new Ministry, the systems related to water conservation and management will be made more effective.

At last, there is some cause for optimism. WaterAid, the NGO that



ranked India among the worst country for household drinking water access, has also ranked it one of the most-

second most populous nation from running dry.

improved nations in terms of the numbers of people able to access clean water as a result of initiatives made since 2000. But major changes need to be made to save the world's

General Studies Paper- I

Topic: Important Geophysical phenomena such as Earthquakes, Tsunami, Volcanic activity, Cyclone etc., geographical features and their location- changes in critical geographical features (including Waterbodies and Ice caps) and in flora and fauna and the effects of such changes.

General Studies Paper- III

Topic: Conservation, environmental pollution and degradation, environmental impact assessment.



3. THE NUANCES OF FEDERAL POLITY IN INDIA

Why in News?

The Ministry of Home Affairs has sought reports from West Bengal government on measures taken to contain political violence. Pointing out the growing number of incidents of election related and political violence and casualties over four years from 2016 to 2019, the Home ministry in an advisory issued to the state government said the “unabated violence over the years is evidently a matter of deep concern.”

Introduction

The rift between the Centre and the non-BJP ruled states is getting wider and wider ever since the BJP returned to power with a larger mandate. As the BJP, with 300 plus members in the Lok Sabha, asserts itself to cast its agenda and programmes around the country, the confrontation with the opposition is bound to intensify in days to come. From West Bengal to Kerala and from Delhi to Tamil Nadu, the non-BJP ruled states are resisting tooth and nail the imposition of Central schemes and agenda. And there has even been an instance where the central government is being accused of creating conditions

to oust a democratically-elected state government.

In the state of West Bengal, the situation is getting worse day by day. The violence that began during the elections continues to this day. The hostility between the ruling Trinamool Congress and the BJP— the party in power at the Centre which has for the first time won large number of Lok Sabha seats from there— is showing no signs of abating. Mamata Benerjee, Chief Minister of West Bengal, has alleged that the Centre and the BJP are engineering violence in the state to topple her government.

West Bengal is not new to political violence, but the scale and intensity of attacks in the run-up to the panchayat polls in the state and thereafter, are still remarkable. Though the elections got over the violence has continued, with incidents including murders reported from across the state. For decades now, the politics of West Bengal has been notably aggressive. Unusually, however, far more party workers have been killed after the election got over than actually during the campaign. If violence was an attempt to influence

voting during the elections, what explains this spike after the exercise ended?

In the meanwhile, West Bengal Governor Kesari Nath Tripathi has called for an all-party meeting to discuss and sort out all their differences so that law and order situation in the state can be restored.

Now, West Bengal government has hit back at the central government on an advisory issued by the Ministry of Home Affairs to the West Bengal government asking it to strengthen the law and order situation in the state over a spate of incidents of political violence following the declaration of Lok Sabha elections results. Also in Rajya Sabha, West Bengal government representatives accused the central government of undermining constitutional rights and ignoring dangerous signs of xenophobic nationalism.

In between in all these events, the Governor of West Bengal has said that there may be a need to impose President's rule if the law and order situation deteriorates further. Thus, the growing number of violence between Central government from

one party and state government from another party has raised the pertinent question about effect of these violence on center- state relation.

Centre - State Relations

The Constitution of India provides a dual polity with a clear division of powers between the Union and the states, each being supreme within the sphere allotted to it. The Indian federation is not the result of an agreement between independent units, and the units of Indian federation cannot leave the federation.

The relation between Centre and state can be elaborated as:

1. Legislative relations
2. Administrative relations
3. Financial relations

But, in this article we will discuss only legislative and administrative relations.

Legislative Relations

Articles 245 to 255 in Part XI of the Indian Constitution deal with the legislative relations between the Centre and the state. These relations are:

- ◆ **Territorial jurisdiction of laws made by the Parliament and by the Legislatures of states:** The Parliament can alone make 'extra territorial legislation' thus the laws of the Parliament are applicable to the Indian citizens and their property in any part of the world.
- ◆ **Distribution of legislative subjects:** The Constitution divides legislative authority between the Union and the states in three lists- the Union List, the State List and the Concurrent List.
- ◆ **Power of Parliament to legislate with respect to a matter in the State List:** Parliament has exclusive authority to frame laws on subjects enumerated in the list. These include foreign affairs, defense,

armed forces, communications, posts and telegraph, foreign trade etc.

Parliament's Power to Legislate on State List

Though under ordinary circumstances the Central government does not possess power to legislate on subjects enumerated in the State List, but under certain special conditions the Parliament can make laws even on these subjects. Some important conditions are:

- ◆ In the national interest (Article 249)
- ◆ Under proclamation of national emergency (Article 250)
- ◆ By agreement between states (Article 252)
- ◆ To implement international treaties (Article 253)
- ◆ Under Proclamation of President's Rule (Article 356)

Administrative Relations

Article 256 to 263 deals with the administrative relations between the centre and the states. The administrative relations between Centre and state operate in a manner that Centre's supremacy is more than visible. During emergencies the Indian federal arrangement can be suspended and squeezed into a unitary operation.

Executive powers of state be exercised in compliance with Union laws: Article 256 lays down that the executive power of every state shall be so exercised as to ensure compliance with the laws made by Parliament and any existing laws which apply in that state and the executive power of the Union shall extend to the giving of such directions to a state as may appear to the government of India to be necessary for that purpose.

Executive powers of state not to interfere with executive power of Union: Article 257 of the Constitution provides that the executive power of every state shall be so exercised as not to impede or prejudice the exercise

of the executive power of the Union, and the executive power of the Union shall extend to giving of such directions to a state as may appear to the government of India to be necessary for that purpose. In short, the Union government can issue directions to the state government even with regard to the subjects enumerated in the state list.

To ensure government of a state is carried on in accordance with the provision of the Constitution: Union can direct the state governments to ensure that the government of a state is carried on in accordance with the provision of the Constitution. If any state failed to comply with any directions given by the Union in exercise of its executive power, then President may hold that, a situation has arisen in which the government of the state cannot be carried on in accordance with the provisions of the Constitution. Thus he may proclaim President's Rule in that state.

Delegation of Union's function to state: The President of India can entrust to the officers of the state certain functions of the Union government. However, before doing so the President has to take the consent of the state government. But the Parliament can enact law authorizing the Central government to delegate its function to the state governments or its officers irrespective of the consent of such state government. On the other hand, a state may confer administrative functions upon the Union, with the consent of the Union only.

All India Services: The presence of the All India Services - the Indian Administrative Services, Indian police Services-further accords a predominant position to the Union government. The members of these services are recruited and appointment by the Union Public Service Commission. The members of these services are posted on key posts in the states, but remain loyal to the Union government.

Union to adjudicate inter-state river water dispute: The Parliament has been vested with power to adjudicate any dispute or complaint with respect to the use, distribution or control of the waters of, or in any inter-state river or river-valley. In this regard, the Parliament also reserves the right to exclude such disputes from the jurisdiction of the Supreme Court or other Courts.

It is thus, evident that in the administrative sphere the states cannot act in complete isolation and have to work under the directions and in cooperation with the Center.

Reasons behind Growing Distrust between Centre and States

The NDA tenure has also seen a sharp increase in the central government's conflicts with non-NDA ruled states. The government's decision to impose President's rule in Uttarakhand and Arunachal Pradesh and an enduring legal battle with the Delhi government have turned the Present government's relationship with non-BJP-run states rather bitter. The centre has also had to contend with criticism from its own allies ruling in different states, including Andhra Pradesh, over non-allocation of promised funds or some demands which were not met.

Further, the electoral promise of cooperative federalism was caught in the tension between the push towards decentralized governance necessary for economic growth and the desire to conquer power in the states which the ruling party does not control.

In addition, the return of President's rule as a political weapon is totally in contradiction with the cooperative federalism promises. It has subordinated federal principles to the imperatives of the conquest of power in the states. It marks a setback in the journey towards a more federal Indian Union.

These reasons risk losing the confidence of states on Center, which may not bode well as many reforms need concurrence of states for its effective implementation. Thus, there is need for Center to remain on the path of cooperative federalism.

Cooperative Federalism – A Rising Phenomena

In recent years, cooperative federalism has took centre stage for smoothening the relationship between Centre and state governments.

For mainstreaming the North-eastern region and correcting regional imbalances in economic growth, the central government is trying to leverage the huge investment potential of state-owned energy companies to set up oil and gas highways and petroleum refining units that will, in turn, lead to the creation of several downstream petrochemical industries with large job creation opportunities. Public and private investments amounting to Rs. 1.3 trillion in the hydrocarbon sector in the North-eastern region have been projected, as the region accounts for about 20% of all national resources and over 50% of total onshore resources in the country, according to Crisil Infrastructure Advisory.

Similarly, in power sector, the Central government framed policies by seeking views from states first rather than asking states to adopt a centrally designed scheme. One example is the turnaround scheme for state-run power distribution companies, the Ujwal Discom Assurance Yojana.

The Fourteenth Finance Commission had favoured giving states more untied funds along with greater fiscal responsibility in implementing centrally sponsored schemes. To this effect, it increased the states' share in central taxes to 42% from 32%. In addition, the centre also decided to bring down the number of centrally sponsored schemes to less than 30

from more than 72 at present, giving states more flexibility in modifying the schemes to meet their individual requirements. This leaves the decision of how to utilize these funds to the state governments.

In addition to it, after roll out of Goods and Services Tax (GST) in 2017, more than 1.14 crore new and migrated dealers in the GSTN system. Even though it is one system, it is owned by the Centre and the states. It is a great example of cooperative federalism.

But, to make cooperative federalism a successful concept, the centre will have to do a bit more hand-holding rather than just handing more money to states. The central government needs to handhold states which lack capacity to utilize funds to meet their development needs. The central government has given them the right through higher allocation of funds but not fixed responsibility on them.

Way Forward

In India, the Centre-States relations constitute the core elements of the federalism. The Central government and state government cooperate for the well-being and safety of the citizens of India. Thus, in order to strengthen the federalism and resolving various conflicts between them, both Centre and state governments need to work together on various constitutional and statutory bodies such as inter-state council and zonal councils among others. All these steps will lead to the path of cooperative federalism which is need of the hour.

General Studies Paper- II

Topic: Parliament and State Legislatures - structure, functioning, conduct of business, powers & privileges and issues arising out of these.



4. GROWING DISTRUST BETWEEN PATIENTS & DOCTORS

Why in News?

Doctors in West Bengal have been protesting over the assault on two junior doctors at NRS Hospital in Kolkata by the relatives of a patient who died at the hospital. The brutal assault on doctor has triggered massive protests among medicos in the country participated in the protest with patients being made to run around for medical help.

Introduction

Not too long ago, there was a time when doctors in India were bestowed upon a divine status. Rural and urban peoples alike, revered medical personnel and blindly trusted them with the lives of their loved ones. But now, times have changed. Incidents of violence against doctors in India have increased in the last few years. According to a study by the Indian Medical Association (IMA), more than 75% of doctors have faced physical or verbal violence during their lifetime. Another study carried out in a tertiary care hospital in New Delhi in year 2016 reported that over 40% of resident doctors were exposed to violence in the workplace in the past 12 months. National newspapers constantly report doctors being abused, bullied, manhandled and even killed by the patient's relatives. Junior doctors face the most violence. They are posted as first responders in emergency rooms but most of them are inexperienced in handling patient queries. Relatives of patients also do not treat them as doctors with experience, resulting in conflict situations.

Recent assault on two junior doctors at NRS Hospital in Kolkata is just one more incident that came into light. In addition, while major incidents involving violence, damage to hospital property, or intimidation of doctors are

reported, cases of verbal abuse, and angry exchanges involving nurses and paramedics often go unreported.

Multi-Factorial Problem

The problem of increasing violence against doctors is multi-factorial in origin. Over the past two decades, India has witnessed an economic boom. So much so, that the socialistic fabric of the region laid down by Gandhi has slowly changed to a capitalistic one. With the rise of corporate hospitals, the mentality of physicians has changed from a charitable to a lucrative one. Though not necessarily deleterious, this change has drastically influenced people's perception of physicians. Earlier even when there used to be one medical officer for an entire village or a small district, people's trust in the doctor remained high. The doctor was regarded as part of the local community and was integral to the health and well being of the social unit. With commercialization of health, more and more physicians have migrated toward corporate settings in urban centers, where large number of patients feel like a fish out of water. The rift between the educated class and the labor class of India has never been wider. The burgeoning intellectual class of doctors has become alienated from the grass root society.

Trust in the doctor-patient relationship has taken a beating over the last few decades. In earlier times, people went into the medical profession for the predominant objective of serving ailing mankind, and thus were viewed as saints. Over time with medical care commercialization, some physicians were accused of being driven by greed and of adopting unethical practices. The ever hungry media rapidly jumped to conclusions and published sensational stories of

organ theft, medical negligence and malpractice. Furthermore, reports of unnecessary tests and needless invasive procedures have caused patient distrust to grow.

Government hospitals in India follow the welfare model, as majority of people are poor and do not have health insurance. Such hospitals offering subsidized medical care are swamped with patients and their attendants. The average medical officer posted in the outpatient department, sees close to 350 patients a day. It is logical to assume that quality of care gets sometimes compromised while attending to such a huge number of patients in a small window of time. This may impart a perception of neglect to the patient and leave him/her only partially satisfied. After waiting in long lines for hours, some patient's attendants are already at the brink of an emotional cliff. Ineffective communication or delay in attending to a patient can easily drive them over the edge. Since most patients lack health insurance, sometimes the diagnosis comes as a financial disaster and shocks them into emotional turmoil. This results in displacement of anger toward the physician.

In addition, we are seeing a decline in interest among young doctors to join government service, attack on doctors being one of the reasons. As a result, a number of posts in public hospitals are lying vacant which, ironically, adds to the problem. This creates a vicious circle of violence against doctors.

Many of violent incidents against doctors occur in the Intensive Care Unit (ICU) and almost 70% of them are caused by relatives of patients. Miscommunication by physicians causes attendants to have unrealistic or too high expectations for patient recovery. Hence it is important to

emphasize the patient's prognosis to the attendants in a lucid manner. Indian medical schools are excellent in imparting medical training to their students; however teaching to be empathetic toward the patient is seriously lacking. Young doctors fresh out of medical school are often not empathetic enough with the attendants, leading to a sense of perceived neglect. This is often the trigger of violent assaults.

Most government hospitals in India lack adequate security personnel. During night hours, it is often the medical officer who plays the role of the doctor, as well as that of the security guard. There is no established protocol for tackling violence or a shooting incident. Most of the police force is plagued by corruption and is prone to bribery. Hence relying on the police for safety is more often than not, useless. The common public has complete lack of faith in the judicial system and feels it is only the rich who obtain justice. Thus in instances of patient death, people believe in exacting immediate revenge, seeking their 'pound of flesh' using physical means rather than filing a case in court.

There exist no laws for the protection and safety of the medical community. While it is a non-bailable offense to assault a uniformed public servant like a bus driver or a policeman, there is no distinct penalty for hitting an on-duty physician in a white coat. The public is cognizant of this phenomenon and feels no apprehension in manhandling a doctor. Since such acts of violence go unpunished regularly, it emboldens the mob and encourages the occurrence of the next incident.

Indian media has played a major role in demonizing doctors with the objective of selling news. Journalism has become increasingly competitive and blaming doctors sans proof has become commonplace. In addition to selling papers, this brand of yellow journalism sells a negative image of the medical community. Since it might be

callous to pin the blame on the patient or the attendants, Indian media outlets find it sensational to scapegoat the physician, thereby causing the public to embark on a frenzied witch hunt. Such scandal mongering has sowed seeds of distrust and skepticism deep in the minds of the people.

Further, with the advent of smartphones, people today have greater access to information. That information may not be accurate or helpful. But it gives people the sense that they know more. And in medical situations, oftentimes the relatives of patients start questioning the doctors and the line of treatment. And with Google on their smartphones, they are able to compare their patient's situation with similar cases listed on the internet. They take online medical advice as the gospel truth, easily believe medical conspiracy theories, and even doubt the medicines prescribed by doctors on the basis of hearsay. So when a patient dies, as it happened in the NRS Medical College case, the relatives immediately start blaming or doubting the doctors and the hospital. And since doctors are no longer seen as godly, emotional relatives resort to fisticuffs and violence.

Analysis of Doctor's Strike and their Impact

Resident doctors often resort to strikes for reasons concerning safety at the workplace, better working conditions, better remuneration, and policy issues such as caste-based reservations and appointments to institute positions. According to RTI application, during the years from April 1, 2006 to March 31, 2011, work was struck on five different occasions, amounting to a total 22 days (eight days in August 2007, two days in April 2008, six days in September 2008, three days in October 2008 and three days in February 2011) in five years, an average of 4.4 days per year. The common factor mentioned for all the strikes was "misbehaviour by attendants with residents". The April

2008 strike concerned misbehaviour of attendants with nurses. The Resident Doctors Association's (RDA) demands were related to improvements in security. Essential Services Maintenance Act (ESMA) was invoked twice in October 2008, and in February 2011.

During strikes, there is a significant decrease in the average number of patients seen in Out Patient Department (OPDs). Though striking residents often start parallel OPDs during strikes, it is clear that the health services are seriously compromised during strikes. Strikes have led to decreased mortality though the reasons suggested for this were scarcity of emergency services and lack of emergency surgeries.

Further, repeated strikes for the same demands suggest that despite announcing appropriate measures every time, the management has failed to address the grievances of the residents adequately.

Tight regulation of security personnel and a serious assessment of the quality of security services are needed as seen in case of several private hospitals which routinely employ bouncers to ward off unruly attendants and family members of patients. Further, inclusion of RDA members in the decision making team may help formulate effective policies for ensuring the safety of residents at the workplace.

Possible Remedies

In response to the attacks, the IMA had launched a doctor education programme in past asking doctors to spend more time with their patients.

The association is also lobbying for a new central criminal law to deal with assaults on doctors and health professionals. At present, a few states have such laws but they are hardly ever implemented. However, some patients' rights groups and independent doctors do not see the need for a separate legislation for safety of doctors and

instead argue for improvement of infrastructure, working conditions in government hospitals, and ensuring quality of care.

Draft Protection of Medical Service Persons and Medical Service Institutions (Prevention of Violence and Damage or Loss of Property) Act, 2017

The draft law was submitted by the IMA to the Ministry of Health in 2017. But, the draft didn't become a central law as health is a state subject. To make a central law on this subject, several states have to write to center. But, in the wake of the NRS Medical College and Hospital incident in Kolkata, has again raised the demand of central law for the protection of doctors.

The provisions of the draft law are stringent: it categorizes both mental and physical abuse as violence against doctors, and covers not just hospitals and a radius of 50 metres around them, but also home visits. Such violence, it says, will constitute an offence that is cognizable, non-bailable, non-compoundable and fit for trial by a court of the Judicial Magistrate of First Class. Apart from penal provisions, it also provides that the offender in case of any property damage will have to pay twice the price of the damaged property as compensation.

The public health care funding has dwindled and government policies are pro-private and in a way promoting passive privatization. The government must start spending more on the public health care system, and at the same time regulate private health care. Rates should be standardised and capped.

Did you Know?

Barring the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994 — making prenatal sex determination illegal — the central government does not intervene in any health laws. "Why is the PCPNDT Act a central one? It is because the authorities saw a unique problem that could be better monitored and remedied by a central law.

Medical councils should be reformed so that they can act as an effective deterrent against medical and ethical violations by doctors. This could help address both medical negligence and doctor bashing.

How to Rebuild Trust?

Trust is a two-way street. More than the legal protection, there is need of little attitudinal change by both doctors and patient, to rebuild trust between them.

Doctor Role

- ◆ Doctors should treat patients like humans and not "cases". Some doctors don't feel that they are in service business and have a duty to treat their customers properly.
- ◆ Simple things like smiling and getting rid of the white coats [which have very little purpose other than to create a barrier] could do well to have a normal conversation.
- ◆ Doctors need to be transparent and give sufficient data points. Doctors who explain patiently tend to build trust. They should explain to patient why a treatment course is needed.
- ◆ Automate simple processes so that patients are not overloaded with trivial stuff.

Patient Role

- ◆ Patients need to understand that doctors are not gods or magicians. Doctors can do as good a scientific guess as possible in what ails patient and how it can be resolved. It is still a lot of guesswork.
- ◆ Patients should respect their time and don't ask them inane questions.
- ◆ If patient believes that there is some malpractice going on, they should need to take the matter to the courts. Courts might not always deliver justice, but taking up arms doesn't do any good.
- ◆ Patients should never commit violence against any fellow human, including the doctors.

Way Forward

The effort to end violence against doctors and medical professionals

must start with the understanding that doctors and patients do not have an antagonistic relationship, and barriers to care created by systemic deficiencies need to be eliminated. The IMA should help arrive at a solution that can address the concerns of both doctors and patients: to institute better systems to counsel patients and remove unreasonable expectations about treatment outcomes. Structural change is needed. The NDA government's National Health Policy, which commits to raising public expenditure on health to 2.5% of Gross Domestic Product (GDP), must pay as much attention to scaling up infrastructure and the capabilities of government hospitals, as to providing financial protection for treatment in expensive private hospitals. It is the public hospitals that the poor come to, looking for compassion.

Violence against doctors behoves ill for society. It is important for all medical practitioners to be aware that this can occur and they need to take steps to prevent it. Doctors need to pressurize the government to equate assault on a doctor with assault on a public servant on duty. Necessary changes should be made urgently in the Indian Penal Code (IPC) and Criminal Procedure Code (CrPC) to have a deterrent effect and prevent future incidents of violence against doctors. However, for this to happen a coordinated effort is needed.

General Studies Paper- II

Topic: Important aspects of governance, transparency and accountability, e-governance-applications, models, successes, limitations and potential; citizens charters, transparency & accountability and institutional and other measures.



5. SAFE FOOD IN INDIA : NEED OF THE HOUR

Why in News?

The Food Safety and Standards Authority of India (FSSAI) is planning to introduce new labelling norms for gluten-free claims on products as well as address the issue of cross-contamination of such products with gluten-containing products during manufacturing.

Introduction

Food is the starting point for our energy, our health and our well-being. We often take for granted that it is safe, but in an increasingly complex and interconnected world where food value chains are growing longer, standards and regulations are that much more important in keeping us safe. So, food safety is vital for the economic growth and progress of a country.

Economic growth, rising incomes, and urbanization have influenced Indians' eating habits. There is increased demand for greater variety in food choices, and Indians are becoming more concerned about food quality and safety. But, with an increasing population, rising economy and rapid urbanisation, India faces many challenges in its quest for food safety. The way in which food is produced, stored, handled and consumed affects the safety of our food. Use of excessive pesticides, growth hormones, exposure to toxic waste etc., result in food contamination at the farm level. Additives, contaminants, chemicals, environmental pollutants, adulterants, toxic colourants or preservatives etc. render the food unsafe for consumption. At any stage of food production, right from the primary production to processing, packaging and supplying, the quality of the food can be compromised. Every step, thus, poses a challenge for enforcement of food safety regulations.

For a country that has to feed nearly 1.3 billion people, strict monitoring

of the food supply chain can be an uphill task but not impossible. Sadly the present food safety scenario in India speaks volumes of how we have failed as a State in providing safe and wholesome Food to its population. The Supreme Court in its 2013 judgment had ruled that right to life also includes right to pure food, beverages.

Food Safety: A Health Concern

Food safety is a serious public health concern in India. In India, the challenges of feeding a large, geographically dispersed population, millions of whom are poor and malnourished, are immense. This has led to the proliferation of illegal, dishonest and bootleg suppliers and slipshod government policies. The results are detrimental to public health, particularly for vulnerable communities. These crises further compromise international perceptions, indicating poor governance, weak political will, inadequate policies and lax enforcement. The path to development is not exclusively about economic growth, jobs, and infrastructure. Clear and consistent food regulatory policy, and their implementation are both imperative for growth and the inherent responsibility of responsible and progressive governments.

The food scandals have plagued India for decades. Nestle's Maggi instant noodles issue is the latest example. Additives such as monosodium glutamate (MSG), which some consider a possible health concerns, have been detected in Maggi noodles, although the company has consistently denied using such additives. After the Food Safety and Standards Authority of India (FSSAI) discovered unhealthy levels of lead in the noodles, the Indian government banned Maggi.

Other cases illustrate India's food sourcing challenges. The rampant

use of milk adulterants (agents to reduce thickness after water is added) can cause both short-term digestive problems and long-term chronic health problems. Genetically modified products are increasingly seen by some as a viable solution for feeding India's growing population, setting the stage for a public battle among corporations, scientists, public health advocates, and NGOs.

Regrettably India's food safety standards are not at developed world standards. The U.S. Food and Drug Administration (FDA) frequently reject products shipped from India, from food to generic medicines and cosmetics. These kinds of incidents raise the prospect that India's food safety monitoring system is inconsistent and arbitrary, a product of larger governance and bureaucratic failures at the regulatory level.

Regulation in India

The Food Safety & Standards (FSS) Act was passed in 2006 to create a single reference point for all matters relating to food safety & standards and regulations. FSS Act also led to the formation of the Food Safety and Standards Authority of India (FSSAI) as an apex authority responsible for formulating science based standards for food in the country and regulating the manufacture, storage, distribution, sale and import of food to ensure consumer safety.

Food Safety and Standards Authority of India (FSSAI)

FSSAI was established in 2008 as envisaged under Section 4 of the FSS Act, 2006. It is the regulatory body for all matters relating to food safety and food standards and represents a shift from multi-level, multi departmental control to a single line of command. It also indicated three paradigm shifts from a fragmented approach to a single

food law, from combating adulteration in food product to food safety across food chain, from prosecution to prevention and capacity building to build a culture of self-compliance. One of the major responsibilities of the FSSAI is the development of science based food standards by harmonising the same with codex standards, whenever possible. The FSS Act became operational with effect from 5.8.2011. The food regulatory framework has now moved from limited 'prevention of food adulteration' regime to 'safe and wholesome' food regime.

Challenges before FSSAI

There is shortage of regulatory staff with the states/UT Governments to implement the FSS Act. As against a modest requirement of 4850 Food Safety Officers (FSOs), there are only 3130 FSOs in the country. There is also shortage of other functionaries in regulatory compliance of states/UTs so much so that as against requirement of 835 Designated Officers, there are at present only 651. Besides, most of Designated Officers as well as Commissioners of Food Safety in states/UTs have additional charge, thus leaving very little time and resource to devote to food safety.

Food Testing Laboratories in most of the states are also not adequately equipped with manpower as well as equipment. As against 62 functional public labs in states, only 13 are National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited and notified by FSSAI. The remaining labs are functioning under transitory provisions as provided under Section 98 of FSS Act, 2006.

Further, there is need to simplify the procedure for registration, licensing etc. and also the requirement of making penalties more stringent wherever there are wilful illegal activities of adulteration endangering public health and safety.

Another challenge faced is that the officers in the field are not fully

conversant with relevant law which leads to different interpretations. This is being addressed by imparting structured capacity building modules to regulatory staff through comprehensive material.

Analysis of Functioning of FSSAI

According to the Standing Committee on Health and Family Welfare, even after more than a decade of the enactment of the Food Safety and Standards Act, 2006, FSSAI is yet to frame regulations governing various procedures relating to accreditation of food testing laboratories, food labelling standards and genetically engineered food, among others. Further, the FSSAI has been unable to identify areas for which standards are yet to be formulated or amended. It was observed that most states do not have a separate food safety department to efficiently implement food safety and standards. This has resulted in lack of quality checks, food adulteration, misleading labelling and sale of defective food products.

Several food businesses were operating either without a license or with expired licenses. Further, licenses were being issued on the basis of incomplete documents by central and state licensing authorities. It also noted that the rejection rate of licenses for renewal is very low.

FSSAI has left the task of undertaking surveys to states, but states are not equipped to undertake surveys. However, no survey has been conducted for the enforcement of the Act. FSSAI also does not have any database on food businesses.

The Consequences of Poor Food Safety

Food is an essential requirement for humans but it can also be a vehicle of disease transmission. Food borne diseases (FBDs) are mainly caused due to food contamination with harmful bacteria, viruses, parasites, toxins or

chemicals. Microbial and chemical risks could be introduced at the farm level (e.g. using water contaminated by industrial waste or poultry farm waste for irrigation of crops). Similarly, such risks may emerge during processing, transportation or storage of food and food products.

While many FBDs may be self-limiting, some can be very serious and even result in death. These diseases may be more serious in children, pregnant women and those who are older or have a weakened immune system. Children who survive some of the more serious FBDs may suffer from delayed physical and mental development, impacting their quality of life permanently. Food allergy is another emerging problem.

FBDs can also affect economic development through the tourism, agriculture and food export industries. In a globalized world, FBDs do not recognize borders. A local incident can quickly become an international emergency due to the speed and range of product distribution, impacting health, international relations and trade.

Unsafe food creates a vicious cycle of diarrhoea and malnutrition, threatening the nutritional status of the most vulnerable. Where food supplies are insecure, people tend to shift to less healthy diets and consume more "unsafe foods" – in which chemical, microbiological and other hazards pose health risks.

Government Initiatives

Food safety is critically important for improving public health and policies need to cover the entire food chain, from farm to fork. The regulatory environment in India is very dynamic, with developments moving at a rapid pace. Some of the developments are given below:

FSSAI's massive outreach efforts from schools to homes to workplaces are helping develop a culture of food safety and nutrition across India. In its

first mass media campaign FSSAI called for eliminating trans-fat in India by the year 2022.

FSSAI also started an 'Eat Right India' movement for consumer awareness about eating safe and nutritious food.

The government is encouraging enrichment of food items with micronutrients to address dietary deficiencies among certain sections of the population and FSSAI has operationalised the draft Food Safety and Standards (Fortification of Foods) Regulations 2016 for fortifying food staples. FSSAI regulated that fortified foods should bear a logo indicating that the item has been fortified and enriched with essential nutrients.

The Food Safety and Standards Authority of India (FSSAI) is planning to introduce new labelling norms for gluten-free claims on products as well as address the issue of cross-contamination of such products with gluten-containing products during manufacturing.

FSSAI is planning to increase the number of notified entry points for food imports in the country. This is being done as part of its efforts to facilitate ease of doing business while ensuring the safety of the food products imported into India.

In a bid to bolster the food testing ecosystem in the country, FSSAI has given provisional approval to nearly 19 Rapid Analytical Food Testing (RAFT) kits and devices. This move will enable food safety officers as well as laboratories to get quicker and validated results for tests conducted on various categories of food products such as milk and edible oils, among others.

Recently, FSSAI has proposed changes to the FSS Act, seeking to bring within its purview export consignments that have hitherto remained unregulated by a domestic agency. It has also suggested a slew of liberalisation measures, including simplification in the process of acquiring food-business licences, to help companies set up businesses more quickly and easily. However, at present, export of foods does not fall under the purview of the FSS Act.

Way Forward

With better understanding of nutritional qualities of food and their health implications, consumers increasingly are rejecting inferior quality and unsafe foods. The discerning Indian consumer does not just want to know if his food is safe, but also details about the ingredients, certifications,

energy content, nutritional benefits, and food additives. In light of this, it is important to educate consumers about the food they are consuming and its nutritional properties, so that they can make informed choices. On one hand, there is a growing population that is facing overnutrition challenges; at the other end of the spectrum, we still have a majority of the population that continues its daily battle with undernutrition. Overall, what everyone needs is good quality food that provides better nutrition. Standards of nutrition also need to be viewed in the context of average Indian diets, which are still largely prepared at home and deficient in some essential micro nutrients. Hence, care needs to be exercised to ensure consumer education and labelling requirements done with the objective of consumer awareness do not cause consumer scare.

General Studies Paper- II

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

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

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6. CIRCULAR ECONOMY : AN ALTERNATIVE DEVELOPMENT MODEL

Why in News?

Recently, NITI Aayog CEO Amitabh Kant has said that adopting circular economy practices would benefit the industry and agricultural sector. According to him, circular economy has potential to create nearly one-and-half crore jobs in next five to seven years and create lakhs of new entrepreneurs.

Introduction

Over the years, mankind has emerged as the most dominant force shaping the world's physical, economic and social

environment. This anthropocentric approach has led to the depletion and in some cases exhaustion of natural resources. With the world population moving towards the 9 billion mark, increase in demand for natural resources is inevitable. However, the world has already reached limits of most resources, with oil reserves remaining only for the next four decades and natural gas for the next five decades.

India has been one of the fastest growing economies and is tipped to

become the fastest growing major economy in the world. This robust economic growth coupled with rising household incomes have resulted in increased consumer spending, which is expected to reach USD 5 trillion by 2024. With a population of 1.3 billion people, accounting for 18% of the global population, living on only 2.4% of the world's surface, India is poised to face significant resource constraints. In order to sustain this growing population, achieve the desired economic growth rate and tackle the

issue of resource scarcity, the country must embark on a positive, inclusive and environmentally sustainable model of development. Unlocking circular economy opportunities hold the key to lead this transformation towards building a low carbon resource efficient economy.

The conventional growth model of India's manufacturing sector, largely predicted by a linear 'take, make and dispose' economic model, is running up against the planet's ability to provide and replenish finite resources. Additionally, the traditional linear economy approach results in massive waste generation at all stages of a product life cycle right from resource extraction, processing, value addition, consumption to end of life stage. Fuelling this burgeoning manufacturing sector requires adopting a growth path which not only utilizes the virgin resources diligently but also focuses on secondary resource management to substitute secondary materials for primary resources.

Decoupling economic growth from resource use can be achieved by a circular economy approach based on sharing, leasing, reusing, repairing, refurbishing and recycling, in an (almost) closed loop, to limit the leakage of resources as much as possible. Essentially, circular economy goes beyond recycling and is based around a restorative industrial system geared towards treating waste as a resource. In practice, this would imply that whenever a product reaches the end of its life, there is an attempt made to keep the materials within the production boundary and use them productively enough to create further value out of it.

What is Circular Economy?

In simple terms, circular economy seeks to eliminate any kind of waste in the market. When viewed from the lens of circular economy, waste doesn't refer

to the usual connotation of "junk", but it refers to any kind of underutilization of resources or assets. A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which resources are kept in use for as long as possible, the maximum value is extracted from them whilst in use, the products and materials are recovered and regenerated at the end of each service life. This economic system is aimed at minimising waste and making the most of resources.

Characteristics and Principles of Circular Economy

Circular economy has become a widely studied discipline by corporates, governments, NGOs and academicians. The following '5R' principles lie at the heart of achieving circularity in any product, process or service:

Reduce: The emphasis is on achieving resource efficiency by prioritizing use of regenerative and restorative resources. The underlying production process must ensure renewable, reusable and non-toxic resources are utilized as sources of materials and energy in an efficient way.

Reuse: This encompasses two aspects – first is to reuse the useful parts / components of a product, wherever possible and second is to promote greater use of product-as-a-service through sharing platforms. The aim is to encourage sharing of under-utilized assets or creating a web of shared services, whereby the service provider typically has ownership of the product throughout the lifecycle, and the customer pays for the time or usage of it, governed by either a short or long term contract.

Recycle: Focus is on creating a closed loop system to utilize discarded material as a source of secondary resource, through extensive recycling.

Re-manufacture: In this approach, idea is to create new products by utilizing waste streams through

cooperation and collaboration between multi-sector industry actors or symbiotic relationship between a network of companies in a particular value chain.

Repair / Refurbish: The aim is to preserve and extend the life of a product that is already made by designing for the future. It is important to ensure at the design stage itself that the product is designed for appropriate lifetime and extended future use. While products are in use phase - maintain, repair, refurbish and upgrade them to maximize their lifetime and give them a second life through take-back strategies, when applicable.

Need for Adopting Circular Economy in India

With economic growth and urbanization taking place at an unprecedented pace in India, there is increased demand for natural resources, be it land, soil, water or mined materials. With their impending depletion and the threat of serious scarcity in the future, it is imperative that we find more efficient ways to use them. Another menace due to rapid urbanization is the increase in waste generation volumes.

In India, extraction of primary raw materials increased by around 420% between 1970 and 2010. According to United Nations Environment (UNE), India consumed about five billion tonnes of materials in 2010, out of which about 42% are renewable biomass and 38% are non-metal minerals. India's material requirements are projected to be nearly 15 billion tonnes by 2030 and little above 25 billion tonnes by 2050 under medium growth scenario. This means that India would nearly triple its demand on primary materials compared to 2010, particularly the demand of energy carriers, metals and non-metal minerals. Increased domestic resource extraction will exert increasing pressure on natural resources such as land, forest, air and

water. Extraction per acre can be used as an proxy estimate of environmental pressure, which in India, is already the highest in the world.

Thus, adopting circular economy can contribute significantly towards achieving Sustainable Development Goals (SDGs), especially Goal 11 on making cities and human settlements inclusive, safe, resilient and sustainable and Goal 12 on ensuring sustainable consumption and production patterns. Achieving circularity would help in keeping global warming less than two degree Celsius above pre-industrial levels, taking a step closer to meeting the nationally determined contributions (NDC) targets. Thus, integrating the principles of circularity seems to be a 'win-win' strategy essentially on all fronts.

Opportunities for India

Cities and Construction

India is urbanising at an unprecedented rate, against a backdrop of resource constraints. So there is huge demand of new commercial and residential space to meet the future needs of India's expanding population. Circular economy principles can contribute to this construction activity in ways that create economic value and decouple development from the use of virgin, non-renewable resources. Renewable and recycled materials and modular construction methods can minimise waste and reduce construction costs. Buildings can be designed to be adaptable to changing needs and contribute to the regenerative urban ecosystem during their use phase (energy generation, connection to nutrient cycling systems, etc.).

Food and Agriculture

Employing half of the country's working population; the agricultural sector remains essential to the Indian economy and vital to the nation's food security. An agricultural system

geared towards closing nutrient loops could give the sector a framework for retaining natural capital, boosting economic and ecological resilience, and delivering a stable supply of fresh, healthy, and diverse food to India's growing population.

Reducing food waste across the supply chain could make the Indian food system even more effective. This would require optimising production and digitising food supply chains to match supply and demand more easily. Urban and peri-urban farming can bring food production closer to consumption, reducing food waste and transportation requirements. Composting and anaerobically digesting food waste with no other valuable use and post consumption nutrients (those contained in human excreta) allows restoration of nutrients to the soil and production of energy.

Mobility and Vehicle Manufacturing

Demand for personal mobility in India is expected to double or even triple by 2030. Car sales are booming, and the country is expected to become the third largest market in the world by 2030, after China and the U.S. Circular economy principles can contribute to a mobility system that would meet the growing needs of the Indian population, especially in cities, while limiting negative externalities, such as greenhouse gas (GHG) emissions, congestion, and pollution.

Barriers and Drivers to a Circular Economy in India

A transition to a circular economic system entails deep-rooted systemic challenges relating to governmental support, tax structures, profitability, education, lack of technical skills and financial barriers, among others.

Project based Information Technology Industry

IT solutions and mobile technology are a good way to harness the

potential of digital technology towards a transition to a circular economy. However, for a long time there has been criticism that the Indian IT industry innovate, but not for India. The focus of the Indian IT industry has been on quarter-to-quarter numbers instead of disruption in the Indian market. Out of the box digital solutions that go beyond "just making applications" as a solution for everything is needed. The industry should also deliver the same quality services as abroad and promote financial and business sense out of IT solutions.

Micro, Small and Medium Scale Enterprises (MSMEs) and the Informal Sector

Before we consider the informal sector as a barrier to a circular economy we must first understand the reason why the informal sector exists, it is because there is high cost for the formal sector to comply with public regulation and requirements and yet make a profit. Thus, to accelerate India's development path towards a circular economy it is important to make it inclusive of MSMEs and the informal sector.

Growth and Profitability

For a circular economic system to be effectively adopted, the system must ensure that India's growth is not reduced and the concept should be profitable for businesses. Long-term prosperity with high growth rates can be a big driver for a circular economy in India.

Policy Support

By the time policy catches up with technology; a new innovation is almost ready to enter the market. A regulatory framework for the future should be designed in a way that specifies explicit ends but leaves the means open for innovation. Rigid regulations will become outdated very fast. Policy support can be the biggest driver for a

transition towards a circular economy. Policy support can create necessary structure, which has the potential to facilitate a circular economy for everyone.

Recently, NITI Aayog has also underlined the need for legislation to promote the circular economy in the country to ensure higher compliance and promote more reuse, refurbishment and recycling.

Way Forward

Indian society has always had circular ideals. As a people, it is ingrained in us to reuse and recycle as much as possible. We have the opportunity to incorporate principles of the circular economy into our social fabric—and the time to do that is now. So, in order to truly reap these opportunities, businesses across industry verticals will need to integrate circular practices into their business practices. They will need

to design products that are easy to repair, using materials that are longer lasting.

In addition, there is a need to create alternatives to planned obsolescence, developing strategies by which products can be re-purposed and generate revenue from services rather than sales. We should find ways to forge cross-industry collaborations with the aim of creating value chains across industry verticals.

Further, several countries have recognised the centrality of the circularity as the new paradigm for sustainable development. They have not only embraced the concept of circular economy in their daily life but also brought in regulations to ensure higher compliance and promote more reuse, refurbishment and recycling. Thus, there is a need for legislation to promote the circular economy in the India.

Resource Efficiency and Circular Economy

Resource efficiency or resource productivity is the ratio between a given benefit or result and the natural resource use required for it. Resource efficiency is closely linked to the concept of “circular economy”, which has also gained prominence as a policy goal for sustainable development in recent years. Circular economy implies reusing wastes back into new products and uses instead of wasting such potential resources. Therefore, steps to achieve a circular economy are an important part of resource efficiency; however, resource efficiency encompasses a wider range of strategies through the entire life-cycle of products: Mining/Extraction- Design - Manufacturing/Production - Use/Consumption - Disposal/Recovery.

General Studies Paper- III

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

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7. CHANGING SPACE SECURITY ARCHITECTURE & INDIA

Why in News?

The Cabinet Committee on Security has cleared the setting up of this new agency called the Defence Space Research Organisation (DSRO) which has been entrusted with the task of creating space warfare weapon systems and technologies. The DSRO would provide research and development support to the Defence Space Agency (DSA), which has been created to help the country fight wars in the space. The DSA comprises members of all the three services and is being set up in Bengaluru under an Air Vice Marshal-rank officer. It will gradually take over the space-related capabilities of the three armed forces.

Introduction

Since the second half of the 20th century when the United States (US)

and Soviet Russia competed in the great “space race,” space has changed from a far-off frontier to a territory rife with opportunities for development and exploration. The 1967 Outer Space Treaty designated this new territory “the province of all mankind” and affirmed “the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes” and guaranteed that “the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries.” However, aside from prohibiting weapons of mass destruction in space, the treaty does not specifically discuss the use of other technologies or weapons in space towards militant ends, and reliance on space technologies such as satellites for espionage and testing of weapons has increased internationally in recent years. In other word, the Outer Space

Treaty bans the placement of nuclear weapons in space and prohibits national appropriation of celestial objects, or building military installations. But, it does not ban military activities in space, space-oriented military forces or the use of conventional weapons in space.

Tensions have grown as Russia announced updates to anti-missile defense systems in 2018, the US created the Space Force military branch in 2018 and began work on an extraterrestrial missile interceptor in 2019, and India, following in China’s footsteps, fired a rocket to shoot down one of its own satellites in 2019 to affirm its position as a significant actor in the militarization of space, among other current events. These actions have ominous repercussions, as they accelerate an impending space race and destabilize the already uneasy balance

of power between countries armed with nuclear weapons. Development of space brings new opportunities for both technological advancement and new types of warfare.

Changing Space Security Architecture

Just last year, the US signalled this by establishing a sixth branch of its military: a re-established US Space Command with its own 'Space Force'. The Chinese created the Strategic Support Force, the fifth branch of their military in 2015, with responsibilities for space and cyber warfare. This is the context in which we need to see India's somewhat cautious decision to establish a Defence Space Agency (DSA).

In the early decades, space was used by the military in a mostly passive manner – to obtain imagery, electronic intelligence and for communication and navigational aids. However, increasingly, the importance of quick encrypted communications and imagery to provide battle-space awareness has become an important factor in modern warfare. So has the ability of space systems to guide fighter jets, Unmanned Aerial Vehicle (UAVs) and munitions. Indeed, many militaries see the use of space as vital to their ability to fight and win wars.

So, we have seen a military interest in blinding adversary satellites, jamming their signals or even capturing and destroying them. This is a whole new world of what is called "counter-space" missions. The Indian Anti-satellite (ASAT) test was just the tip of the iceberg, and a somewhat outdated demonstration. Countries like the US and China have moved to other techniques, like ramming satellites or using ground- or space-based lasers to take them out.

The future environment is likely to see an even more intense use of satellites, perhaps constellations of

smaller satellites that can provide real-time information on demand. In an environment where satellites can be disabled or neutralised, the military would want to have the ability to rapidly replace them – in other words, have their own launch vehicles and satellites. Thus, it is not surprising that India has set up a DSA.

India – Journey towards Space Power

In most countries, civilian applications of space were an offshoot of their essentially military programmes. The US, Russia, China and Europe developed space capabilities for military purposes first, and then put those technologies to civilian use. Barring Europe's Ariane rockets, their extant satellite launch vehicles are derived from their respective intercontinental ballistic missile designs.

India's space quest, on the other hand, was focused on civilian use—weather forecasting, broadcast, telecommunications and remote sensing. It was only in the mid-1980s that technology from the Indian Space Research Organisation's (ISRO) Satellite Launch Vehicle-3 was employed in the Agni ballistic missile.

When it comes to satellites, India has a handful of military satellites in operation, compared to over 40 civilian ones. Since 1980s, ISRO's INSAT series has been providing the country with the capability for telecommunications and TV broadcast. But it was only with the Cartosat series, beginning in 2005, that India got its own satellites capable of providing militarily useful imagery, though only some work exclusively for the armed forces, the others, as usual, multi-task. At last, the first satellite dedicated for military communications, the GSAT 7 (a.k.a. INSAT 4F), was launched only in 2013. This was to service the needs of the Indian Navy. Then, in December 2018, it launched the GSAT 7A to service the requirements of the Indian Air Force.

In 21st century, a country can be called as space power if it has "the ability to use space while denying reliable use to any foe". India already has significant ability to use space. But our ability to deny its use to an adversary is, understandably, negligible. March's anti-satellite (A-SAT) test is the first visible sign that India is on the road to acquire counter-space capability. The newly instituted DSA will be supported by a defence space research organization (DSRO) that should create weapons to "deny, degrade, disrupt, destroy or deceive an adversary's space capability". All these developments would boost India's counter-space capability and will place India among the league of space power countries.

Need of DSA

India has always maintained that outer space should be used for peaceful purposes alone. But the changing nature of warfare, with the increasing integration of outer space into conventional military operations, has proved to be a critical impetus for India to change its track. Traditionally, the use of space assets for passive military applications such as surveillance and intelligence has been considered acceptable but given the networked nature of warfare, there is an increasing reliance on space for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR). Given this growing dependence on space for such functions, there are similarly growing vulnerabilities, with some states developing assets to interfere with, disrupt or damage space assets. In this context, while ASATs are destabilising, the development of counter-space capabilities including cyber and electronic warfare means to target space assets are worrisome. Also, terrestrial geopolitics is beginning to have an important bearing on how

outer space affairs are conducted. A domain that remained relatively peaceful for decades is seeing greater competition and there are signs of a budding arms race in outer space, which India cannot afford to ignore.

After sitting on the margins for long, India has now begun to respond to these new realities in space security. India's ASAT test, for instance, was an effort to establish credible space deterrence. But states have still not adopted deterrence within the space domain and there is time to prevent it from happening. The three other states that have demonstrated ASAT capabilities have not operationalised them yet. This offers states an opportunity to change course before it's too late.

India has tried to improve its institutional architecture for space with the creation of the Integrated Space Cell within the Integrated Defence Headquarters a decade ago but the establishment of the DSA is more welcome. Additionally, the government will be putting in place a DSRO, akin to the Defence Research and Development Organisation (DRDO). The DSRO is meant to be doing the research and development in terms of the capability requirement on the space security side, whereas the DSA will be responsible for the policy and strategy affecting the space security dynamics.

Overcoming Obstacles

Though, India is steadily enhancing its capacity with goal of becoming leading space power in the world. But, it has to overcome few challenges before being recognized as space power. Few initiatives that can be taken by India to realize its goal are following:

Increasing Satellite Safety - India must protect and secure two kinds of space assets—those that belong to us and those that are crucial to our economy and national security.

While satellites are usually hardened to weather the harsh extremes of the space environment, in older designs, protection against space weapons might not have been considered. Future designs must certainly factor in the risk of attack by hostile forces.

Debris Management - In order to effectively defend our space assets, India must have the most reliable and accurate capabilities to track space objects, from debris and spacecraft to celestial bodies. Since accurate tracking forms the basis of almost every conceivable action that we might undertake—including the all-important ability to target at will—this crucial capability must be developed indigenously.

Building Credible Offensive Capacity - For space defence to be effective, India must acquire a minimum, credible offensive capacity across the various types of space weapons, physical, electronic and cyber. The "minimum" is to ensure that we do not get overly drawn into an arms race, while ensuring that we have what it takes to deter attacks on our space assets. As India has demonstrated in the nuclear sphere, such a posture is wise, possible and works. Credibility demands that both partners and adversaries are persuaded that we have the capacity, so occasional demonstrations become necessary.

Declaring Space Policy – Another important step for the government to do is to declare a space policy in the open domain. India's unstated space doctrine is to use space to promote development and the well-being and prosperity of its people. What we must do now is to include the word "security" in that sentence. In doing so, the policy goal will change from having a space presence to being a space power. Our broader space policy must acquire a new seriousness in improving launch

capabilities and spacecraft design. In addition, the policy shouldn't be a sector specific rather it has to be an all-encompassing one.

Way Forward

Five centuries ago, a few small European countries acquired global power and domination by investing in well-armed blue-water navies. On the subcontinent, the mighty Mughal empire—larger and perhaps militarily more powerful than most of them—settled for a coastal force performing constabulary duties. The failure to appreciate how much the game had changed and how best to equip for it, proved very expensive in the long run. Let us not forget that lesson.

Further, with creation of DSA, India should play an active role and grab the opportunity to shape the global rules of the road for two reasons. One, this will strengthen India's global governance credentials in the outer space domain. As a spacefaring state with growing reliance on outer space for a number of different functions, it makes both economic and strategic sense. Two, with India taking the lead, it can ensure that the rules that get formulated are comprehensive and inclusive to include the interests of India and other developing states. India championing the case of other developing states' interests will also have multitude indirect benefits.

General Studies Paper- III

Topic: Achievements of Indians in Science & Technology; indigenization of technology and developing new technology.

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



SEVEN SUBJECTIVE QUESTIONS WITH MODEL ANSWERS

International Day of Yoga 2019 : Yoga for Climate Action

Q 1. Apart from becoming a global transformative force, Yoga has now become India's most impactful public good. Analyse.

Hints:

- ◆ Yoga has gained admiration and captured peoples' imagination across the world, and thus has become a source of India's soft power.
- ◆ Yoga's benefits toward health are slowly being realised the world over. As the world makes the epidemiological transition and the contribution of most of the major non-communicable disease groups to the total disease burden is increasing, it is important that individuals make healthier choices and follow lifestyle patterns that foster good health.
- ◆ People from all over the globe move towards India for Ayurveda, yoga and meditation in Rishikesh, Uttaranchal, which is practiced for centuries. In fact, India quickly emerged as a health tourism destination because of them.
- ◆ Today, yoga is thoroughly globalised phenomenon; yoga has taken the world by storm and is gaining popularity day by day. In short, yoga suggests a number of ways to achieve a calm peaceful mind.

Growing Water Crisis & Its Management in India

Q 2. One of the biggest challenges of the 21st century is the glawing water crisis. Critically discuss how newly constructed 'Jal Shakti Mantralaya' will tackle the challenges of water crisis.

Hints:

- ◆ According to the NITI Aayog report, India is the world's biggest groundwater extractor. As things stand, it forecasts that 21 cities, including Delhi, Bengaluru, Chennai and Hyderabad, will run out of groundwater

by 2020; also, 40% of our citizens will have no access to drinking water by 2030.

- ◆ The constitution of the new Jal Shakti Mantralaya is the first concrete step taken by the Central government towards a holistic and integrated perspective on water.
- ◆ The new Jal Shakti Ministry has begun work by announcing that the government intends to provide piped drinking water to every household by 2024.
- ◆ Until now, the institutional landscape for water in India has been somewhat fragmented, with about seven ministries and more than 10 departments having a say on different aspects of water management and use. Not only have these had some overlapping roles and responsibilities, but no single body had the ultimate oversight and authority necessary to resolve conflicting issues and take the necessary decisions. This led to these ministries and departments working in silos.
- ◆ Raising awareness and changing perceptions on water also needs to be an important priority. Behaviour change communication initiatives for both internal and external stakeholders will be critical in changing attitudes towards water. All stakeholders, from state governments to citizens, must be taken on board and a national consensus will have to be built.

The Nuances of Federal Polity in India

Q 3. Discuss the reasons behind growing distrust between Centre and state governments.

Hints:

- ◆ The NDA tenure has also seen a sharp increase in the central government's conflicts with non-NDA ruled states. The government's decision to impose President's rule in Uttarakhand and Arunachal Pradesh and an enduring legal battle with the Delhi government have turned the Present government's relationship with non-BJP-run states rather bitter.
- ◆ In addition, the return of President's rule as a political weapon is totally in contradiction with the cooperative

federalism promises. It has subordinated federal principles to the imperatives of the conquest of power in the states. It marks a setback in the journey towards a more federal Indian Union.

- ◆ Further, the electoral promise of cooperative federalism was caught in the tension between the push towards decentralized governance necessary for economic growth and the desire to conquer power in the states which the ruling party does not control.
- ◆ These reasons risk losing the confidence of states on Center, which may not bode well as many reforms need concurrence of states for its effective implementation. Thus, there is need for Center to remain on the path of cooperative federalism.

Growing Distrust between Patients & Doctors

Q 4. "Trust is a two-way street. More than the legal protection, there is need of little attitudinal change by both doctors and patient, to rebuild trust between them." Discuss it in the context of growing distrust between patients and doctors.

Hints:

- ◆ Trust in the doctor–patient relationship has taken a beating over the last few decades. In earlier times, people went into the medical profession for the predominant objective of serving ailing mankind, and thus were viewed as saints. Over time with medical care commercialization, some physicians were accused of being driven by greed and of adopting unethical practices.
- ◆ Doctors should treat patients like humans and not “cases”. Some doctors don’t feel that they are in service business and have a duty to treat their customers properly.
- ◆ Patients need to understand that doctors are not gods or magicians. Doctors can do as good a scientific guess as possible in what ails patient and how it can be resolved. It is still a lot of guesswork.
- ◆ The effort to end violence against doctors and medical professionals must start with the understanding that doctors and patients do not have an antagonistic relationship, and barriers to care created by systemic deficiencies need to be eliminated.

Safe Food in India : Need of the Hour

Q 5. Food is the starting point for our energy, our health and our well being. So, food safety is vital. Discuss the

government initiatives to strengthen the regulatory framework.

Hints:

- ◆ Food safety is critically important for improving public health and policies need to cover the entire food chain, from farm to fork.
- ◆ Food safety is a serious public health concern in India. In India, the challenges of feeding a large, geographically dispersed population, millions of whom are poor and malnourished, are immense. This has led to the proliferation of illegal, dishonest and bootleg suppliers and slipshod government policies.
- ◆ The Food Safety and Standards Authority of India (FSSAI) is planning to introduce new labelling norms for gluten-free claims on products as well as address the issue of cross-contamination of such products with gluten-containing products during manufacturing.
- ◆ FSSAI also started an 'Eat Right India' movement for consumer awareness about eating safe and nutritious food.

Circular Economy : An Alternative Development Model

Q 6. What do you mean by 'circular economy'. Discuss its prospects and challenges in the context of India.

Hints:

- ◆ A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which resources are kept in use for as long as possible, the maximum value is extracted from them whilst in use, the products and materials are recovered and regenerated at the end of each service life.
- ◆ Circular economy has become a widely studied discipline by corporates, governments, NGOs and academicians. The following ‘5R’ principles lie at the heart of achieving circularity in any product, process or service: reduce, reuse, recycle, re-manufacture and repair.
- ◆ Adopting circular economy can contribute significantly towards achieving Sustainable Development Goals (SDGs), especially Goal 11 on making cities and human settlements inclusive, safe, resilient and sustainable and Goal 12 on ensuring sustainable consumption and production patterns.
- ◆ A transition to a circular economic system entails deep-rooted systemic challenges relating to governmental support, tax structures, profitability, education, lack of technical skills and financial barriers, among others.

Changing Space Security Architecture & India

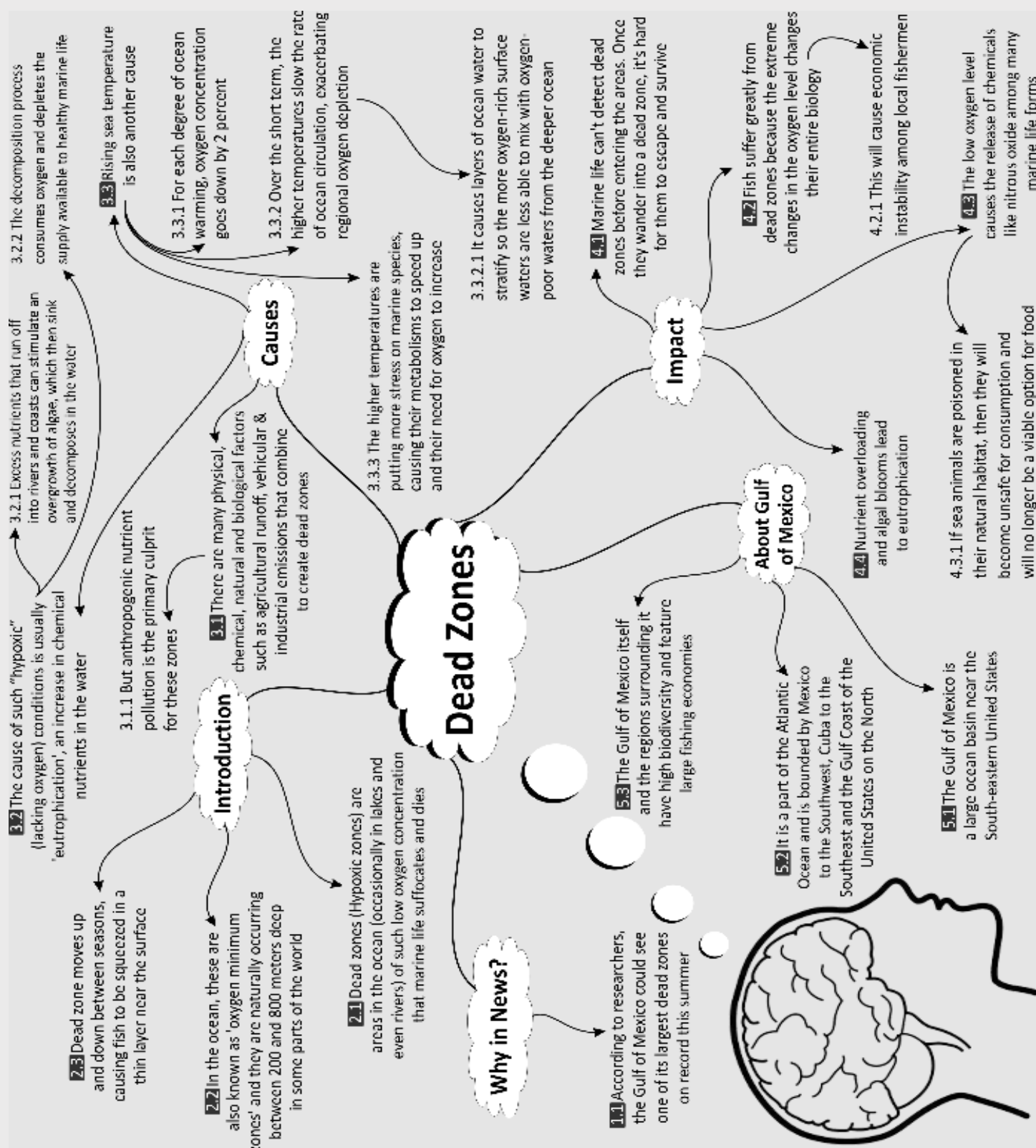
Q 7. Development of space brings new opportunities for both technological advancement and new types of warfare. Discuss it in the context of newly established agency by India to develop space warfare weapon system.

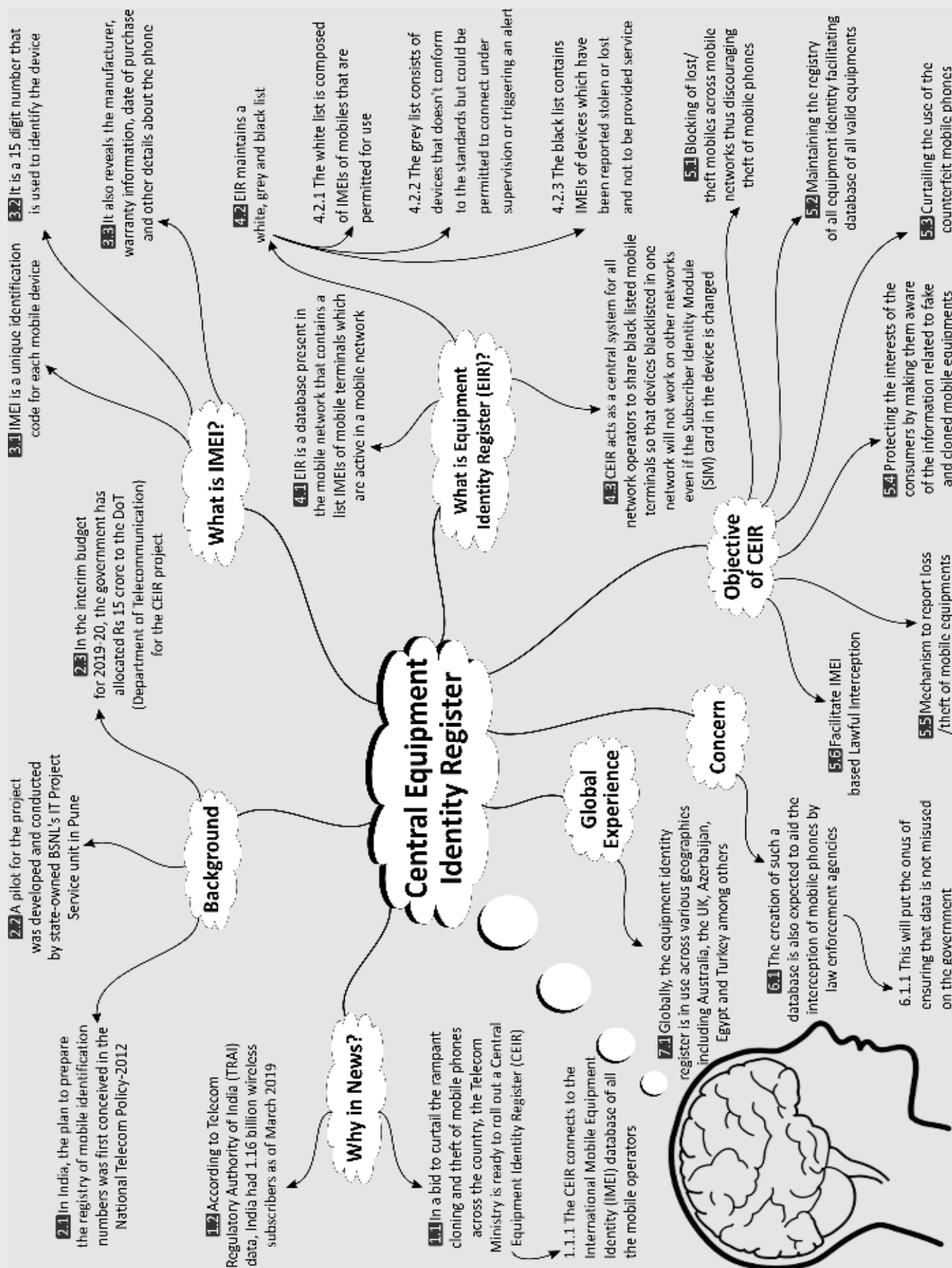
Hints:

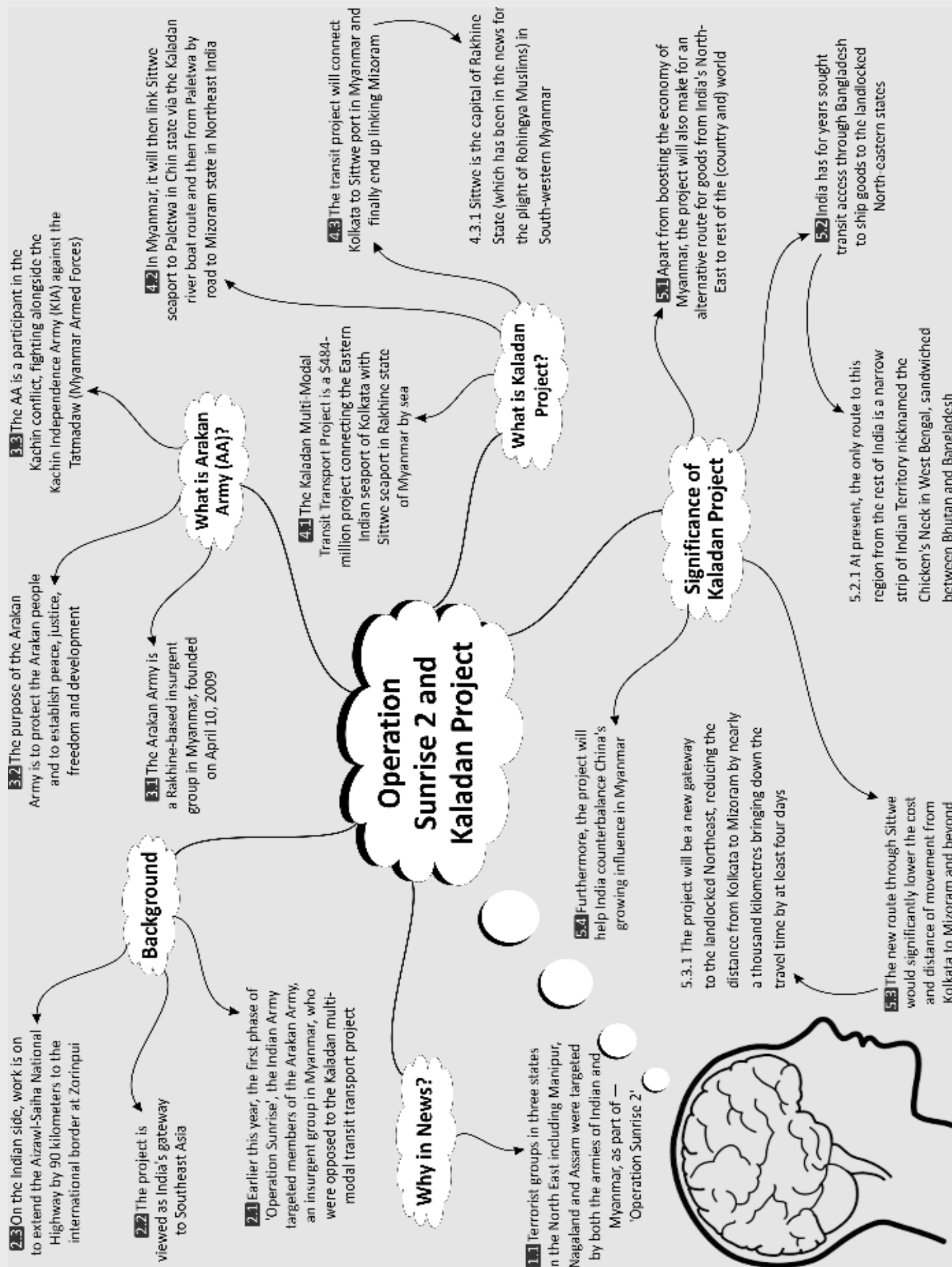
- ◆ The Cabinet Committee on Security has cleared the setting up of this new agency called the Defence Space Research Organisation (DSRO) which has been entrusted with the task of creating space warfare weapon systems and technologies. The DSRO would provide research and development support to the Defence Space Agency (DSA), which has been created to help the country fight wars in the space.
- ◆ India has always maintained that outer space should be used for peaceful purposes alone. But the changing nature of warfare, with the increasing integration of outer space into conventional military operations, has proved to be a critical impetus for India to change its track.
- ◆ India has tried to improve its institutional architecture for space with the creation of the Integrated Space Cell within the Integrated Defence Headquarters a decade ago but the establishment of the DSA is more welcome. The DSRO is meant to be doing the research and development in terms of the capability requirement on the space security side, whereas the DSA will be responsible for the policy and strategy affecting the space security dynamics.
- ◆ Though, India is steadily enhancing its capacity with goal of becoming leading space power in the world. But, it has to overcome few challenges before being recognized as space power.

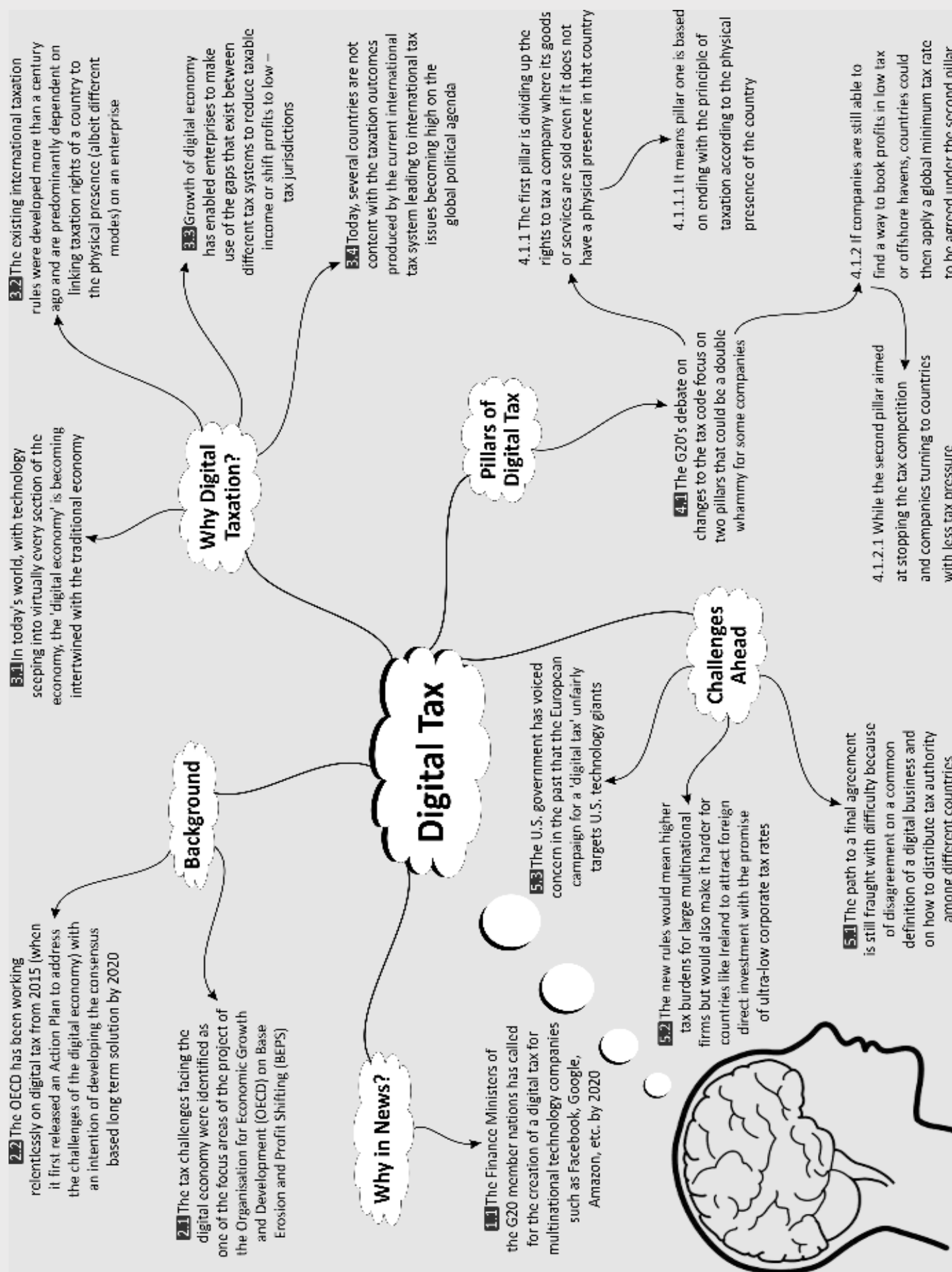
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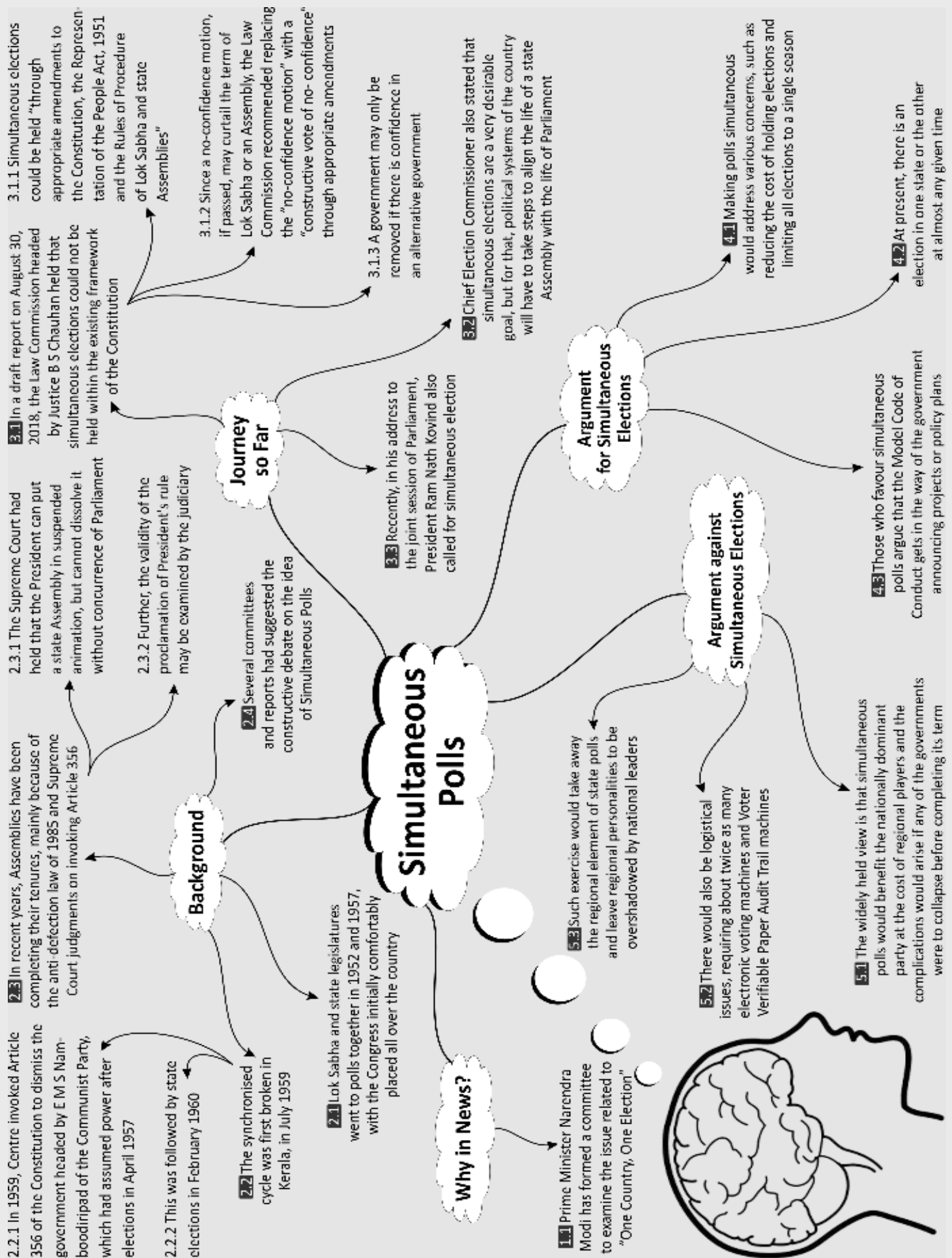
SEVEN BRAIN BOOSTERS

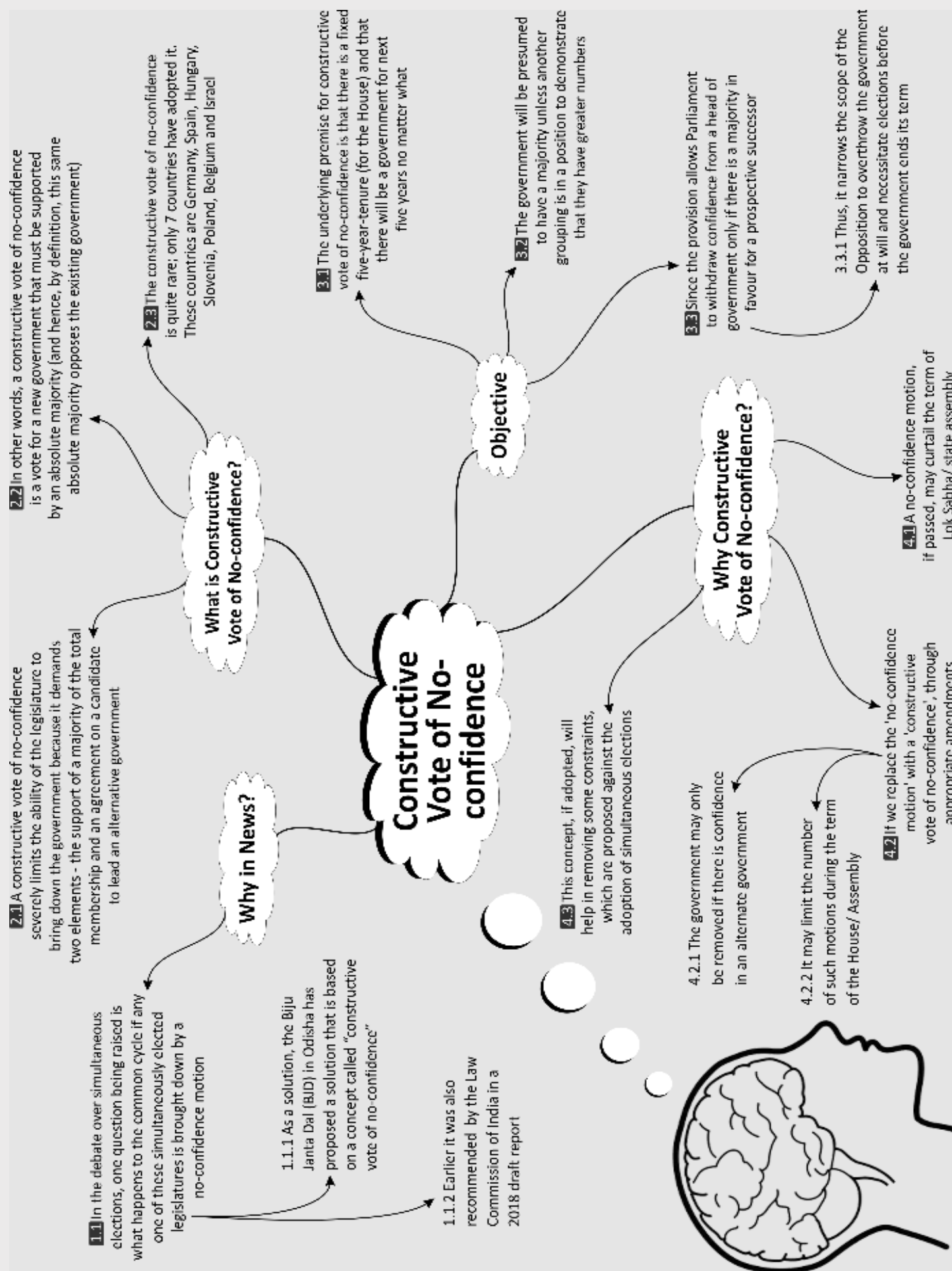


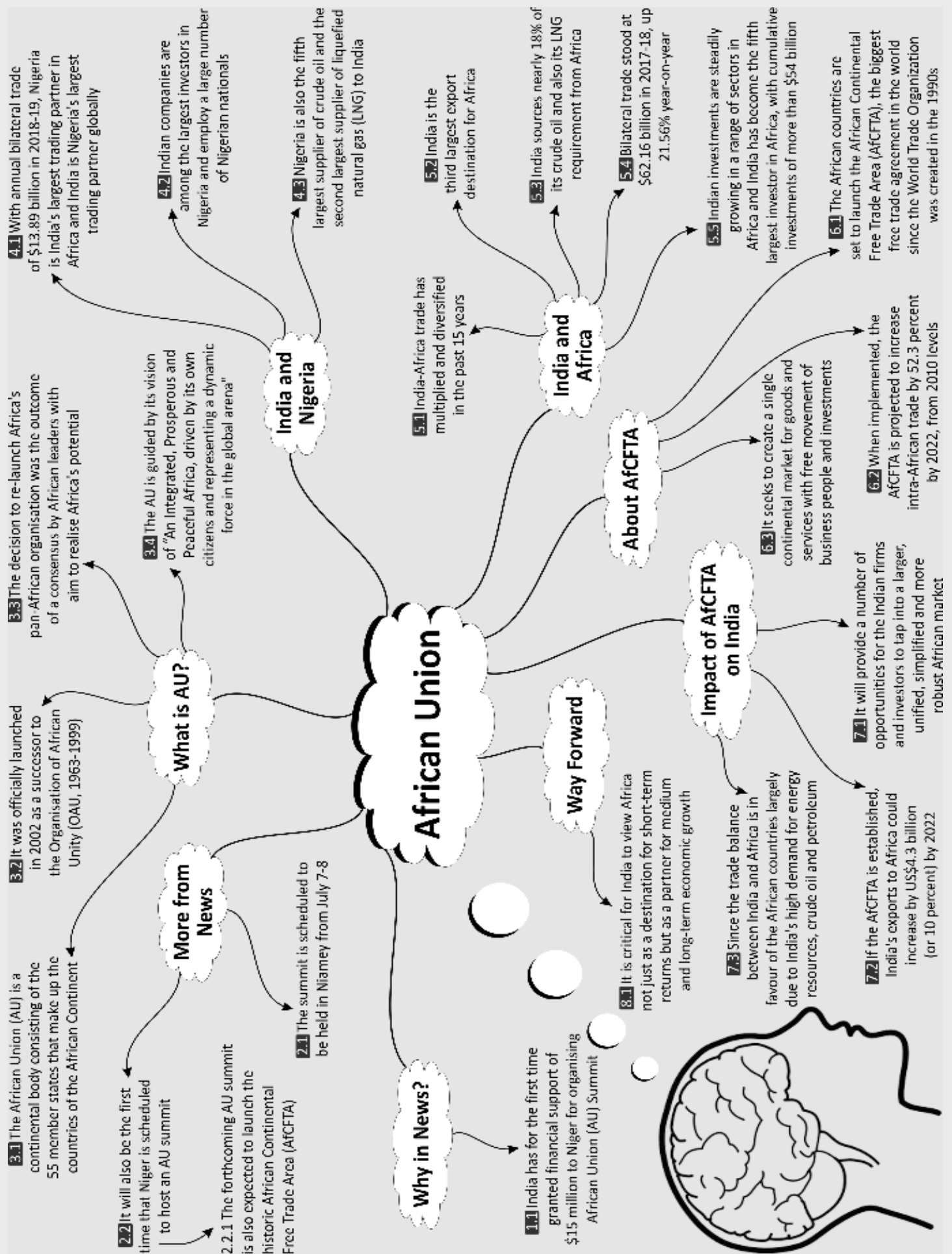












SEVEN MCQ's WITH EXPLANATORY ANSWERS

(Based on Brain Boosters)

Dead Zones

Q1. With reference to the 'dead zones', consider the following statements:

1. Dead zone is a more common term for hypoxia, which refers to a reduced level of oxygen in the water.
2. The cause of such "hypoxic" (lacking oxygen) conditions is usually 'eutrophication', an increase in chemical nutrients in the water.

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. Dead zones (Hypoxic zones) are areas in the ocean (occasionally in lakes and even rivers) of such low oxygen concentration that marine life suffocates and dies.

The cause of such "hypoxic" (lacking oxygen) conditions is usually 'eutrophication', an increase in chemical nutrients in the water. Excess nutrients that run off into rivers and coasts can stimulate an overgrowth of algae, which then sink and decomposes in the water. The decomposition process consumes oxygen and depletes the supply available to healthy marine life.

Central Equipment Identity Register

Q2. Consider the following statements in respect of 'Central Equipment Identity Register (CEIR)':

1. The CEIR connects to the International Mobile Equipment Identity (IMEI) database of all the mobile operators
2. It is initiative of Ministry of Telecommunication and NITI Aayog.
3. Once an IMEI number is reported as stolen with the help of CEIR, the Department of Telecommunications (DoT) will then be able to blacklist the IMEI effectively.

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: (c)

Explanation: Statement 1 and 3 are correct. The CEIR connects to the International Mobile Equipment Identity (IMEI) database of all the mobile operators. Once an IMEI number is reported as stolen with a police complaint being filed, the Department of Telecommunications (DoT) will then be able to blacklist the IMEI effectively blocking the mobile device from accessing any cellular network.

Statement 2 is not correct. Only Ministry of Telecommunication will roll out CEIR, in a bid to curtail the rampant cloning and theft of mobile phones across the country.

Operation Sunrise 2 and Kaladan Project

Q3. Consider the following statements:

1. The Kaladan Project is being jointly developed by India, Myanmar and Bangladesh.
2. The project will connect Kolkata to Sittwe Port in Myanmar and Chittagong Port in Bangladesh.

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: (d)

Explanation: Both statements are incorrect. The Kaladan Multi-Modal Transit Transport Project is a \$484-million project connecting the Eastern Indian seaport of Kolkata with Sittwe seaport in Rakhine state of Myanmar by sea.

In Myanmar, it will then link Sittwe seaport to Paletwa in Chin state via the Kaladan river boat route and then from Paletwa by road to Mizoram state in Northeast India. The transit project will connect Kolkata to Sittwe port in Myanmar and finally end up linking Mizoram.

Digital Tax

Q4. Recently, G20 finance ministers have called for 'digital tax'. Consider the following statements in this regard:

1. The proposed tax would have two fundamental pillars.
2. One based on ending with the principle of taxation according to the physical presence of the country, with the second aimed at stopping the tax competition and companies turning to countries with less tax pressure.

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. The proposed tax would have two fundamental pillars. One based on ending with the principle of taxation according to the physical presence of the country, with the second aimed at stopping the tax competition and companies turning to countries with less tax pressure.

Simultaneous Polls

Q5. Consider the following statements in respect of 'Simultaneous Polls':

1. Simultaneous polls could be held through amendments to the Constitution, the Representation of the People Act 1951 and the Rules of Procedure of Lok Sabha and state Assemblies.
2. Simultaneous elections will reduce the cost of overall elections in India.

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. Simultaneous polls could be held through amendments to the Constitution, the Representation of the People Act 1951 and the Rules of Procedure of Lok Sabha and state Assemblies. Making polls simultaneous would address various concerns, such as reducing the cost of holding elections and limiting all elections to a single season.

Constructive Vote of No-confidence

Q6. Consider the following statements:

1. The constructive vote of no-confidence can create a situation where an absolute majority of the legislature opposes the government, but cannot agree on a candidate to form an alternative government.
2. In a constructive vote of no confidence, the government may only be removed if there is confidence in an alternate government.

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. A constructive vote of no-confidence is a vote for a new government that must be supported by an absolute majority (and hence, by definition, this same absolute majority opposes the existing government). The constructive vote of no-confidence can create a situation where an absolute majority of the legislature opposes the government, but cannot agree on a candidate to form an alternative government.

African Union

Q7. Consider the following statements in respect of 'African Union (AU)':

1. AU was officially launched in 2002 as a successor to the Organisation of African Unity (OAU, 1963-1999).
2. AU has launched the African Continental Free Trade Area (AfCFTA) in 2018.
3. AfCAT seeks to create a single continental market for goods and services with free movement of business people and investments.

Which of the statements given above is/are correct?

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

Answer: (b)

Explanation: Statement 1 and 3 are correct. The African Union (AU) is a continental body consisting of the 55 member states that make up the countries of the African Continent. It was officially launched in 2002 as a successor to the Organisation of African Unity (OAU, 1963-1999).

Statement 2 is not correct. The African countries are set to launch the African Continental Free Trade Area (AfCFTA), the biggest free trade agreement in the world since the World Trade Organization was created in the 1990s.



SEVEN IMPORTANT FACTS FOR PRELIMS

1. Which state government decided to issue its press releases in the Sanskrit language also along with Hindi, English and Urdu?

–Uttar Pradesh

2. What is the name of new species of a wild cat found in island of Corsica?

–Cat Fox

3. Who has won the 35th men's Asian Snooker Championship in Doha?

–Pankaj Advani

4. Which country has carried out cyberattack on Iranian weapons systems?

–United States

5. Who has honoured the Star of Jerusalem medal, one of the highest honours given to foreign nationals by the Palestinian Authority?

–Sheikh Mohammad Munir Ansari

6. Which country has become the first Arab country to be granted full membership of the Financial Action Task Force (FATF)?

–Saudi Arabia

7. Which nation has agreed to revoke its citizenship given to Mehul Choksi (a key accused in the Rs 13,400 crore-Punjab National Bank (PNB) bank scam)?

–Antigua



SEVEN PRACTICE QUESTIONS FOR MAINS EXAM

1. What is 'Lunar Evacuation System Assembly (LESA)'. Discuss its applications in future space programmes.
2. What is data localisation? Discuss the India's domestic policy on the same.
3. What do you understand by the term 'Constructive Vote Of No-confidence'? Discuss its applicability in relation to simultaneous polls.
4. "The water crisis in Chennai needs holistic and widely resonant solutions". Discuss it in the context of present water crisis in Chennai.
5. What are 'basic rights'? How are they different from other fundamental rights? Discuss why it is time to articulate an equally robust doctrine of basic rights in India.
6. The incidents of mob lynching in India is increasing. Discuss why India needs an authoritatively worded ultimatum that could deter vigilante groups from committing such heinous crimes.
7. "The government's intent to provide piped drinking water to all households by 2024 is admirable ambition." Discuss the challenges and opportunities related to this initiative.



SEVEN IMPORTANT NEWS

1. Pakistan to remain on FATF Grey List

The Financial Action Task Force (FATF) has decided to keep Pakistan on its 'Grey' list for failure to curb funnelling of funds to terror groups LeT, JeM and others and has given a September deadline to comply with its 27-point action plan.

Key Highlights

Pakistan has not been able to implement the action plan, which was assigned to it by the Asia/Pacific Group on Money Laundering (APG) and FATF, deadline of which ended in January 2019, but was given leverage till May 2019. FATF warned Islamabad to meet its commitment by October or face action, which could possibly lead to the country's blacklisting.

The FATF continuing Pakistan in the 'Grey' list means its downgrading by IMF, World Bank, ADB, EU and also a reduction in risk rating by Moody's, S&P and Fitch. This will add to the financial problems of Pakistan, which is seeking aid from all possible international avenues.

The US, the UK and France were some prominent countries to have voiced concern over Pakistan's failure to do enough to contain terror funding in its soil and not registering cases against terror masterminds Hafiz Saeed and Masood Azhar under anti-terror laws.

The temporary breather for Islamabad came as a result of its assertive diplomatic effort to garner

the support of FATF member countries to counter the looming threat of a 'blacklist' push from the existing 'grey list'. Pakistan has been able to attract the support of Turkey, China, and Malaysia, which has helped Islamabad avoid being placed on the FATF blacklist.

Currently, India, the co-chair of the joint group of FATF and APG, along with the United States and United Kingdom.

Background

Pakistan has been on the FATF's radar since June 2018, when it was placed on a grey list for terrorist financing and money laundering risks after an assessment of the country's financial system and security mechanism. ■

2. World Refugee Day 2019

Each year, 20 June is celebrated as World Refugee Day across the world. The theme of the day was '#StepWithRefugees — Take A Step on World Refugee Day'. It is a day dedicated to raising awareness about the precarious condition of refugees around the world who have been forced to leave their homes due to war, persecution and conflict.

Key Highlights

The number of people fleeing war, persecution and conflict exceeded 70 million in 2018. This is the highest level that United Nations High Commissioner for Refugees (UNHCR) has seen in its almost 70-year history. Data from UNHCR's annual Global Trends report showed that almost

70.8 million people are now forcibly displaced. To put this in perspective, this is double the level of 20 years ago, 2.3 million more than a year ago and corresponds to a population between that of Thailand and Turkey.

The figure of 70.8 million is conservative, in particular as the crisis in Venezuela is still only partly reflected in this number. In all, some four million Venezuelans, according to data from governments receiving them, have left their country, making this among the world's biggest recent displacement crisis.

Key Terms

1. Refugees: These are the people forced to flee their country because of conflict, war or

persecution. In 2018, the number of refugees reached 25.9 million worldwide, 500,000 more than in 2017. Included in this total are 5.5 million Palestine refugees.

2. Asylum seekers: People outside their country of origin and receiving international protection, but awaiting the outcome of their claim to refugee status. At the end of 2018, there were 3.5 million asylum seekers globally.

3. Internally Displaced People (IDPs): The third and biggest group, at 41.3 million, is people displaced to other areas within their own country, a category commonly referred to as IDPs. ■

3. World Sickle Cell Day 2019

World Sickle Cell Awareness Day is celebrated on June 19th of each year to raise the public awareness about the sickle cell disease and its treatment methods.

Due to the incurable and complex nature of SCD, people with the condition have a reduced life expectancy compared to normal individuals. If left untreated, many may not survive beyond infancy or childhood, and in some cases, the disease may not produce any symptoms at all until after many years.

What is Sickle Cell Disease?

Sickle cell disease (SCD) is an inherited genetic abnormality of hemoglobin

(the oxygen-carrying protein found in red blood cells). This abnormality causes stuck in small blood vessels, which can slow blood flow and oxygen to parts of the body. Normally, red blood cells are flexible and round, moving easily through your blood vessels. In sickle cell anemia, the red blood cells become rigid and sticky. Red blood cells can live up to 120 days before the body needs to replace them, while sickle cells last only 10 to 20 days causing anemia because of red blood cells disorder.

SCD has many symptoms, including severe anemia, episodes of pain, in addition to a range of complications, most prominently:

dizziness, acute chest syndrome (ACS) that causes chest pain, heart failure, chronic kidney disease (CKD), pulmonary hypertension, gallstones, splenomegaly, Immunodeficiency, Joint damage especially in the hip joint, stroke or paralysis, foot ulcers, retinopathy, endocrine disorders, and delayed puberty.

SCD and India

India has the second largest number of patients suffering from the disease with the highest incidence in central India and the Jammu and Kashmir valley. Worldwide, majority of those with the condition are of African and Hispanic origins. ■

4. Climate Change is affecting major crops in India

Researchers from Columbia University, US, have studied the effects of climate on five major crops in India: finger millet, maize, pearl millet, sorghum and rice.

Key Highlights

According to the scientists, these crops make up the vast majority of grain production during the June-to-September monsoon season -- India's main grain production period -- with rice contributing three-quarters of the supply for the season.

Taken together, the five grains are essential for meeting India's nutritional needs. The yields from grains such as millet, sorghum, and maize are more

resilient to extreme weather. Their yields vary significantly less due to year-to-year changes in climate and generally experience smaller declines during droughts.

Temperatures and rainfall amounts in India vary from year to year and influence the amount of crops that farmers can produce. With episodes of extreme climate such as droughts and storms becoming more frequent, it is essential to find ways to protect India's crop production from these shocks.

The researchers also used modelled data on temperature and precipitation. Using these climate variables as predictors of yield, they then employed a modelling approach

to estimate whether there was a significant relationship between year-to-year variations in climate and crop yields.

This study shows that diversifying the crops that a country grows can be an effective way to adapt its food-production systems to the growing influence of climate change.

The increasing the production of alternative grains in India can offer benefits for improving nutrition, for saving water, and for reducing energy demand and greenhouse gas emissions from agriculture. ■

5. 'Chullah (wood-fired stove)-free and smoke-free Maharashtra' Project

Maharashtra government has launched a pilot project aimed at providing

smoke-free environment in the kitchen for women. The project, named

"Chullah (wood-fired stove)-free and smoke-free Maharashtra", will target

the women who have not benefited under the Ujjwala or any other LPG distribution scheme. The pilot project will be implemented in Naxal-affected areas as well as the districts where farmer suicide rate is high.

Household Pollution in India

According to the study, emissions from the household fuels such as wood, dung, coal and kerosene is one of the major contributor in air pollution India. It found that fine particulate matter (PM 2.5) from household air pollution

also eats away at the user's health. In many rural areas, where electricity and gas lines are scarce, the bulk of air pollution originates from burning biomass such as wood, cow dung or crop residues, to cook and heat up the home, and from burning kerosene for lighting.

As of now, the government of India has distributed around 8 crore LPG connection under Pradhan Mantri Ujjwala Yojana (PMUY) to make air pollution-free environment.

Further, to make LPG affordable to poor families, Oil Marketing Companies (OMCs) have introduced 5 Kg refill option to Ujjwala beneficiaries where in Ujjwala beneficiary can swap 14.2 Kg cylinder with 5 Kg refill and vice versa.

PMUY implementation has been appreciated by the World Health Organization (WHO) and termed it as a decisive intervention to check the indoor health pollution being faced by the women of the country.

6. National Anti-Profiteering Authority

The Goods and Services Tax (GST) Council, led by finance minister Nirmala Sitharaman has introduced more stringent norms to check tax evasion and extended the tenure of the National Anti-Profiteering Authority (NAA) by two years to November 2021.



Key Highlights

The GST Council also decided to impose more stringent penalties for companies engaged in profiteering. If the profiteered amount is not surrendered within 30 days, then the company will face penalty to the extent of 10 per cent of the same. Earlier provisions called for a penalty of Rs 25,000 in addition to the profiteered amount.

The federal indirect tax body also decided that Aadhaar-based GST identification will now be sufficient for GST registration.

About NAA

Soon after the GST was rolled out on 1 July 2017, the government had approved setting up of the NAA for two years to deal with consumer complaints against companies not passing on GST rate cut benefits. The NAA came into existence on 30 November 2017 with B N Sharma taking charge as Chairman. So far, the NAA has passed 67 orders in various cases.

NAA deals with customer complaints regarding non-receipt of tax cut benefits.

7. NSSO-CSO Merger

On May 23, the government announced that the National Sample Survey Office (NSSO) will be merged with the Central Statistics Office (CSO) to form the National Statistical Office (NSO).

Background

In 2000, a committee headed by former Reserve Bank of India (RBI) governor C. Rangarajan suggested the establishment of NSO as the nodal body for all core statistical activities. It would have worked under the National Statistical Commission (NSC), which

was to be answerable to Parliament, not the government. The intent was to clean up collection, calculation and dissemination of data. NSC was set up in June 2005, but didn't have a statutory role. It was given supervisory powers over one arm of the statistical system, NSSO.

Key Highlights of the Order

The order makes no mention of NSC, reinforcing the long-held belief that the government was undermining it. The merger of CSO and NSSO—an entity

separate from Ministry of Statistics and Programme Implementation (MoSPI)—will take away the latter's autonomy. The order seems to suggest NSC's independent oversight mechanism will no longer exist and makes no mention of that. The order clearly puts the merged entity under MoSPI secretary, raising questions about the independence of the process through which official survey data is collected and published.

SEVEN IMPORTANT HIGHLIGHTS FROM PIB

1. World Bank approved \$147 Million Loan to the Government of Jharkhand

The government of India, the government of Jharkhand and the World Bank has signed a \$147 Million loan agreement to provide basic urban services to the people of Jharkhand and help improve the management capacity of the urban local bodies (ULBs) in the state.

Key Highlights

The Jharkhand Municipal Development Project will focus on improving the municipal sector's capacity to provide basic urban services.

It will invest in urban services such as water supply, sewerage, drainage, and urban roads; and strengthen the capacity of the Jharkhand Urban Infrastructure Development Company (JUIDCO) as well as that of the ULBs to carry out reforms in the areas of urban finance and governance.

This is in keeping with the needs of a rapidly urbanizing state where about 31 million people reside in urban areas and urban population growth in nine of 24 districts in Jharkhand is above India's overall urbanization pace of 2.7 percent.

Over the past decade, Jharkhand has been focusing on bringing ULBs to the forefront of development and delivery of municipal services. However, there is a huge unfinished reforms and investment agenda for the state. In a broader context, this project will support the process of strengthening the capacity of urban local bodies while investing in municipal services.

The project will improve urban governance by assisting ULBs to improve their organizational capacity, manage finances in a sustainable manner, and focus on the development of its nodal implementing agency, JUIDCO.

Interventions such as piped water supply, storm water drains, climate friendly road construction and energy efficient street lighting will not only help improve urban services but also make it environmentally sustainable.

Government of India has recognized that urbanization and economic growth are interlinked and initiated a comprehensive road map for municipal reforms through the AMRUT program.

2. Future-ready Employability Skilling Program for ITI students

Directorate General of Training (DGT), under the aegis of the Ministry of Skill Development and Entrepreneurship has joined hands with two big private sector companies- Cisco and Accenture, to skill youth for the digital economy, through its Industrial Training Institutes (ITIs). Along with the implementation partner Quest Alliance, this program will equip students enrolled in ITIs across India with skills for the digital economy over the next two years.

Key Highlights

The program includes tailor-made curriculum with modules for digital literacy, career readiness, employability skills and advanced technology skills such as data analytics and a blended learning model enabled by a combination of online self-learning via the Bharat Skills portal and in-classroom modules. Nearly 15,00,000 students across all the ITIs in India can access the digital learning module via the Bharat Skills portal.

The initial phase of the in-classroom training programme is being rolled out across 227 ITIs in Tamil Nadu, Gujarat, Bihar and Assam, targeting more than 1,00,000 youth. The in-classroom program will deliver more than 240 hours of training to impart critical 21st century skills including digital literacy and digital fluency skills; workplace readiness skills including creative problem solving and use of data in decision making; and career management skills including the cultivation of a growth mindset and the ability to identify and plan careers.

About Bharat Skills Portal

Bharat skills is a self-learning seamless platform for ITI students and teachers, a central repository of trade relevant study materials, video tutorials, question bank, mock test was launched. It gives the trainees an ability to learn from any location 24/7.

3. E-Commerce and Data Localization

As India is looking to finalise a national e-commerce policy, Union Minister of Commerce and Industry held a series of meetings with industry stakeholders on digital trade and data localization.

Key Highlights

Common issues for discussion include opportunities for India in the growing digital economy, value addition in Indian gross domestic product (GDP) due to advent of e-commerce, understanding data flows from four aspects – privacy, security, safety and free choice, ownership and sharing of data, gains and costs of cross border flow of data and means to monitor use of data.

Issues like strengths and weaknesses of Indian companies who may benefit from e-commerce, threats from large foreign competition, level playing field and impact of anti-competitive practices such as predatory pricing and other discriminatory practices were discussed during meeting. The meetings come in the wake of a draft policy on e-commerce

in which the government has proposed regulating cross-border data flows, locating computing facilities within the country to ensure job creation and setting up a dedicated data authority for issues related to sharing of community data, asserting that the data generated in the country is a national asset and citizens and the government have a sovereign right over it.

The draft national e-commerce policy has proposed setting up a legal and technological framework for restrictions on cross-border data flow and also laid out conditions for businesses regarding collection or processing of sensitive data locally and storing it abroad.

About Data localisation

Data localisation is the act of storing data on any device physically present within the borders of a country. As of now, most of these data are stored, in a cloud, outside India. Localisation mandates that companies collecting critical data about consumers must store and process them within the borders of the country.

4. Research on Dalit Entrepreneurship

A Memorandum of Understanding (MoU) was signed between Dr. Ambedkar International Centre (DAIC) and Dalit Indian Chamber of Commerce and Industry (DICCI) to empower Schedule Caste (SC) and ST (Schedule Tribe) Communities through research on Dalit Entrepreneurship. The main areas of collaboration between DAIC and DICCI are as follows:

- ◆ Strengthen the ties between DAIC and Industrial Organisations to make collaborative efforts in the fields of research and training.
- ◆ Make joint efforts for creating a knowledge bank which may be used to facilitate scholars, researchers and policy makers.
- ◆ Prepare ground for induction of technological knowhow of the industry and administration in academia for better research and policy feeds.
- ◆ Prepare a common ground for the industries, institutions, universities, organizations, ministries, research centers and agencies for sponsoring/awarding projects to DAIC and DICCI for activities related to academic and policy research and policy advocacy and capacity building for start-ups and entrepreneurs.
- ◆ Both DAIC and DICCI will be having rights on intellectual property and knowledge products created through collaborative efforts.
- ◆ Training for Indian academics, officers and professionals, especially in the areas of training and learning methodologies, research and policy analysis, administration, social justice and social and financial inclusion.
- ◆ Development of innovative learning platforms and education programmes with emphasis on low residency and learning at distance for workers and adult learners.

5. Dysfunctional Legislatures

The Vice President of India has cautioned Members of Parliament (MPs) about the growing perception that democracy is in danger through “dysfunctional legislatures” and advised them to recalibrate their ways of thinking and acting.

Key Highlights

- ◆ Observing that substantial loss of functional time results in very low productivity, pendency of crucial legislations and lapse of some Bills on dissolution of the Lok Sabha.

- ◆ Question Hour lost means an opportunity to seek answers from the government on eight issues of policy implementation and governance by 40 members.
- ◆ He expressed the concern about disruptions and the negative public perception arising out of this dysfunctional state of affairs.
- ◆ Because of the dysfunctional legislatures, the trust and confidence of people in our institutions is getting eroded.
- ◆ He also sought members suggestions on the automatic lapsing of bills in Rajya Sabha and on

how to make Parliament a more effective forum of decision making.

What is Question Hour?

The Question Hour is an interesting part of the Parliamentary proceedings. The first hour of every sitting of Parliament is generally reserved for the asking and answering of questions. During the Question Hour, the members can ask questions on every aspect of administration and governmental activities.

Through the Question Hour the Government is able to quickly feel the pulse of the nation and adapt its policies and actions accordingly.

6. Renewable Energy Expansion Programs of India

The G20 Ministerial Meeting on Energy Transitions and Global Environment for Sustainable Growth was held in Japan. Minister of State for Power and New & Renewable Energy (IC) and Skill Development & Entrepreneurship RK Singh participated in the meeting.

Key Highlights

India is implementing one of the largest renewable energy expansion programs, energy efficiency programmes and moving towards the achievement of our target to fulfill our commitments made in Paris Agreement on Climate Change.

He highlighted the pathbreaking achievements in household electrification and providing energy access to all in India. India is taking the progressive steps towards the achievement of target to fulfill its commitment made in Paris Agreement on Climate Change.

He expressed confidence that India will achieve 40% renewable energy (RE) in energy mix by 2030. In addition to this, various energy efficiency programs such as through PAT, UJALA, Standard & Labelling, ECBC etc. also helping India to fulfill its commitment for greener and healthier planet.

India is achieving one of the largest expansion of renewable energy in the world and has become a net exporter of power in past 5 years. He also talked about India's achievements in Transmission systems- One nation one Grid, Green Energy Corridors etc.

India's Renewable Energy Target

The government has set a target of installing 100 GW of solar capacity by 2022 in the country. A target of installing 175 GW of renewable energy capacity by the year 2022 has been set, which includes 100 GW from solar, 60 GW from wind, 10 GW from bio-power and 5 GW from small hydro-power.

7. World Food India 2019

'World Food India 2019', the biggest gathering of all global and domestic stakeholders in food processing sector, will be held in New Delhi during November 1-4 2019. The tagline of the event will be "Forging Partnerships for Growth".

Food Processing Sector of India

Food processing is one of the six superstar sectors under the government of India's 'Make in India' initiative and has the potential to transform India as a leading food processing destination of the World.

Indian food processing industry has grown tremendously recording 11% growth rate, which is twice the pace of global industry. The sector has recorded double digit growth rate across all major sub-segments of the sectors both in terms of value and volume. Despite huge domestic market of 1.3 billion customers with the youngest population globally and

an abundant agricultural base, the processing levels in India remain low at 7.7% behind several economies such as China, Malaysia and US.

India's share in global exports of processed food is only 2%. Besides, India also has a high share of harvest and post-harvest losses from major agricultural produces on account of poor storage, transportation and logistics to the extent of INR 92,651 Crores (\$13 Billion)-3 times the agricultural budget.

Background

The government initiated a biennial event- World Food India to promote food processing sector at global level. The first such event was conducted in 2017 and received wide success. The event created Brand India in global food map by positioning India as a World Food Factory.



SEVEN IMPORTANT CONCEPTS THROUGH GRAPHICS

1. Asia



Key Facts

- Asia is the largest of the world's continents, covering approximately 30 percent of the Earth's land area. It is bordered by the Arctic, Pacific, and Indian Oceans.
- Asia may be divided into five major physical divisions. They are: the Northern Lowlands, the Central Mountain, the Southern Plateaus, the Great River Valleys and Island groups.
- The Climate of Asia is influenced by a number of factors such as its vast size, great latitudinal extent as well as its relief. The presence of the great East-West mountain barrier across Asia, and the open nature of the boundary with Europe too have an important influence on the climate of Asia. Thus, the climate of Asia can be divided into three parts. These are: Cold Asia, Monsoon Asia and Dry Asia.
- The natural vegetation in Asia varies from the mosses and the lichens of the Arctic Tundra to the impenetrable equatorial rain-forests of the South-east.
- Asia is also rich in several natural resources such as soil, coal, water, forests, grasslands and minerals.
- Major crops grown in Asia are rice, wheat millets, pulses, oil seeds, sugarcane, tea, cotton, jute and rubber.
- Asia has a great diversity of ethnic groups, with two-thirds of all Asian peoples belonging to Mongoloid group. The principal Asian religions are Hinduism, Islam and Buddhism.

2. Africa

Key Facts

- Africa is the second largest continent, after Asia. Africa is the most tropical of all continents.
- It is the only continent through which the Tropic of Cancer, the Equator and the Tropic of Capricorn pass.
- The African continent is separated from Europe by the Mediterranean Sea and from Asia by the Red Sea. However, it almost touches Eurasia at three different points: the Straits of Gibraltar in the North-west, the Suez Canal in the North-east and the Strait of Bab-el-Mandeb in the East.
- The continent is made up of very old crystalline, metamorphic, and sedimentary rocks of great hardness (collectively known as 'basement complex').
- Africa has eight major physical regions: the Sahara, the Sahel, the Ethiopian Highlands, the Savanna, the Swahili Coast, the Rain Forest, the African Great Lakes, and Southern Africa.
- Africa has large reserves of diamond, gold, platinum, cobalt, chromium, copper, tin, bauxite and Uranium. But there is not much coal and iron ore in this continent.
- With the exception of maize, cereals are not important. Amongst the cash crops, palm oil, groundnut, cocoa, coffee, cotton and sisal are important.
- Africa is well known for the diverse races and tribes. Majority of the population in Africa comprises of Negros (70%) and rest is comprised of Europeans and Asian origin people.



3. Europe



Key Facts

- Europe is a small continent located entirely in Northern Hemisphere.
- Its boundaries are the Arctic Ocean in the North, the Atlantic Ocean in the West and the Mediterranean Sea in the South. In the East, it is separated from Asia by the Ural Mountains, the Caucasus Mountain and the Caspian Sea.
- Europe may be divided into four major physical divisions. These are: North-western Highlands, North European Plains, Central Uplands and Alpine System.
- The overall climate of Europe is more temperate than its Northerly location would suggest. Europe lies in the region of the Westerlies. As such, most of the time the wind blows from the South-west. Since there is no mountain system from North to the South, there is no obstruction for these winds. As a result, these winds blow deeper into the land and modify the temperature.
- Europe has been divided into the following natural vegetation regions. These are: Tundra Vegetation

Region, Taiga Region, Mixed Forest Region, Deciduous Forest Region, Grassland Region and Mediterranean Vegetation Region.

- Europe is endowed with a variety of natural resources such as coal, iron-ore, petroleum and natural gas, etc. Even though all people are called as Caucasians, there are major differences in colour of skin, hair and eyes.

4. North America

Key Facts

- North America, third largest of the world's continents, lying for the most part between the Arctic Circle and the Tropic of Cancer.
- North America is bounded on the North by the Arctic Ocean, on the East by the North Atlantic Ocean, on the South by the Caribbean Sea and on the West by the North Pacific Ocean.
- A group of islands known as the West Indies, are also included in this continent.
- North America has four major physical divisions. They are: Canadian Shield, Appalachian Mountains or Eastern Highlands, Central Plains and Western Cordilleras.
- North America has a varied climate. Extending between the tropical zone in the South and the frigid zone in the North, North America is huge in size.
- North America is rich in forest resources. Three major types of forest are found here. These are Coniferous forests cover most of Canada, northern United States and the Western Cordilleras.
- In the southern part of the temperate regions oak and beech grow along with coniferous trees. Tropical rain forests are found in southern Mexico and countries of Central America.
- North America is quite rich in a variety of mineral resources such as petroleum, natural gas, nickel, zinc, asbestos, gold, silver, copper and iron ore.



5. South America

Key Facts

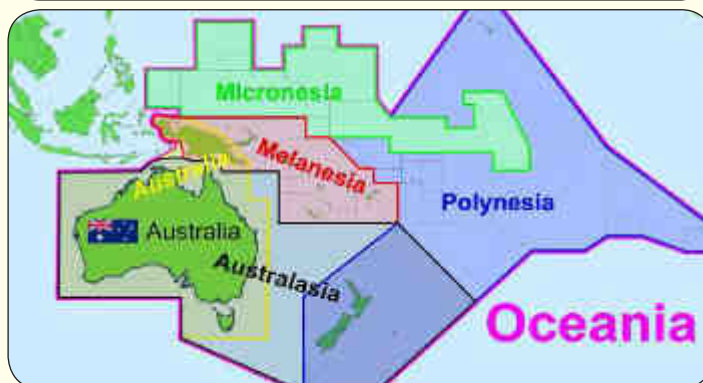
- South America, the fourth-largest continent, extends from the Gulf of Darien in the northwest to the archipelago of Tierra del Fuego in the South.
- South America, Central America, Mexico and the West Indies, together make up Latin America.
- It is bounded by the Caribbean Sea to the Northwest and North, the Atlantic Ocean to the Northeast, East and Southeast, and the Pacific Ocean to the West. In the Northwest it is joined to North America by the Isthmus of Panama.
- South America has four major physical divisions. These are: the Western Coastal Strip, the Western Mountains, the Central Plains and the Eastern Highlands.
- It can be divided into four major climatic regions—tropical, temperate, arid, and cold. Elevation, particularly in the Andes, is another important climatic control.
- Natural vegetation of South America is the direct outcome of its climatic and pedological conditions. The areas of hot and humid climate are covered by the tropical rain forests or Selvas while the deserts of Atacama and Patagonia have thorny bushes. They yield valuable softwood.
- South America is very rich in minerals with huge deposits of mineral oil, iron-ore.
- The people of South America belong to three main racial groups. They are the American Indians, the Blacks and the Europeans. Besides these, there are a large number of people of mixed races. They are Mestizos (mixed Indian and European blood), Mulattos (mixed European and Black) and Zambo (mixed Black and Indian blood).



6. Oceania

Key Facts

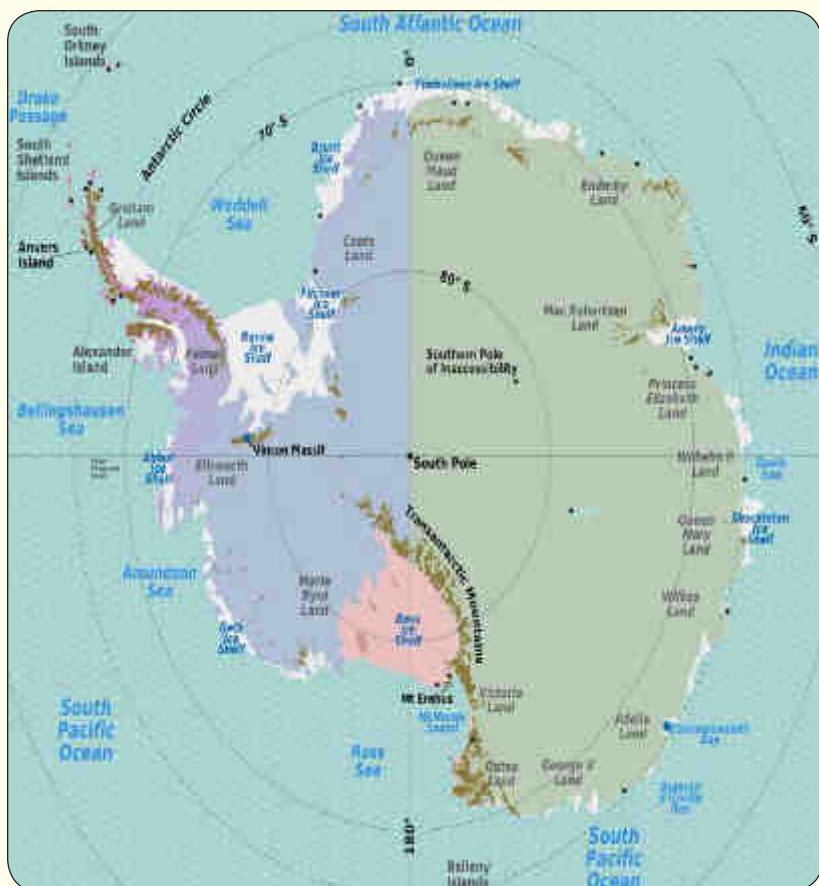
- Oceania is a region made up of thousands of islands throughout the Central and South Pacific Ocean. It includes Australia, the smallest continent in terms of total land area.
- Oceania is dominated by the nation of Australia. The other two major landmasses of Oceania are the micro continent of Zealandia, which includes the country of New Zealand and the Western half of the island of New Guinea, made up of the nation of Papua New Guinea.
- Oceania also includes three island regions: Melanesia, Micronesia, and Polynesia (including the U.S. state of Hawaii).
- Oceania can be divided into three island groups: continental islands, high islands, and low islands.
- Most of Oceania is divided into two climate zones. The first of these is temperate and the second is tropical. Most of Australia and all of New Zealand are within the temperate zone and most of the island areas in the Pacific are considered tropical.
- Oceania's temperate regions feature high levels of precipitation, cold winters, and warm to hot summers. The tropical regions in Oceania are hot and wet year round.
- In addition to these climatic zones, most of Oceania is impacted by continuous trade winds and sometimes hurricanes (called tropical cyclones in Oceania).
- Agriculture is also important in Oceania and there are three types which are common in the region. These include subsistence agriculture, plantation crops, and capital-intensive agriculture.



7. Antarctica

Key Facts

- Antarctica is the fifth largest continent of the world. It is the only continent which is isolated and zero native populated and is completely covered with snow. It is, therefore known as the 'white continent'.
- Antarctica lies completely in the Southern Hemisphere with the South Pole almost in its centre.
- It is surrounded by the Southern Ocean. Alternatively, it may be considered to be surrounded by the Southern Pacific, Atlantic, and Indian Oceans, or by the Southern waters of the world ocean.
- About 99% of the continent remains covered permanently with ice, the average thickness being approximately two to five kilometers.
- Much of the Antarctica is rugged and mountainous. Shores are steep and there is no coastal plain.
- Maud Range divides the continent almost into two equal parts. One of the most picturesque landmarks on the continent in Mount Erebus which is the only live volcano on it. Though vegetation in this part is comparatively more than in the other parts of the continent. It consists of mostly lichens and mosses.
- Anywhere from 1,000 to 5,000 people reside throughout the year at research stations scattered across the continent.
- Experts believe that mineral and metal resources are likely to be available in Antarctica.



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and many more...

AN INTRODUCTION

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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.

Civil Services Exam requires knowledge base of specified subjects. These subjects though taught in schools and colleges are not necessarily oriented towards the exam approach. Coaching classes at Dhyeya IAS are different from classes conducted in schools and colleges with respect to their orientation. Classes are targeted towards the particular exam. classroom guidance at Dhyeya IAS is about improving the individuals capacity to focus, learn and innovate as we are comfortably aware of the fact that you can't teach a person anything you can only help him find it within himself.

DSDL Prepare yourself from distance

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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