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SEVEN IMPORTANT ISSUES

1. GLOBAL NUTRITION REPORT- 2018 AND INDIA

Why in news

India is facing a major malnutrition crisis as it holds almost a third of the world's burden for stunting, according to recently published Global Nutrition Report, 2018.

Introduction

The Global Nutrition Report, published by World Health Organization (WHO) is the world's leading report on the state of global nutrition. It is data-led and produced independently each year to cast a light on where progress has been made and identify where challenges remain. The report aims to inspire governments, civil society and private stakeholders to act to end malnutrition in all its forms. It also plays the important role of helping hold stakeholders to account on the commitments they have made towards tackling malnutrition.

The Global Nutrition Report was conceived following the first Nutrition for Growth Initiative Summit (N4G) in 2013 as a mechanism for tracking the commitments made by 100 stakeholders spanning governments, aid donors, civil society, the UN and businesses.

Key Highlights

- ◆ Global burden of malnutrition “remains unacceptably high and progress unacceptably slow”. Under-nutrition accounts for around 45% of deaths among children under five in low- and middle-income countries.

- ◆ Overweight and obesity has led to around 4 million deaths and 120 million healthy years of life lost across the globe, with around 38.9% adults found to be overweight.
- ◆ Among children under five years of age, 150.8 million are stunted, 50.5 million are wasted and 38.3 million are overweight; while 20 million babies are born underweight each year.
- ◆ The impact of malnutrition on global economy is close to US\$3.5 trillion per year, with obesity alone costing US\$500 billion per year.
- ◆ A major section of the study looks at the quality, nutrient content and type of food consumed across the globe. The results suggest a disparity between developed and emerging markets.
- ◆ Regardless of wealth, school-age children, adolescents and adults are consuming too many refined grains, sugary foods and drinks, and not enough fruits, vegetables and whole grains.
- ◆ The world is off track to meet all nutrition targets.

India's Related Findings

- ◆ India holds almost a third (31%) of the global burden for stunting, the prevalence of which differs from state to state. As per the UNICEF, stunting, or low height for age, is caused by long-term insufficient nutrient intake and frequent infections.

- ◆ Stunting varies greatly from district to district (12.4% to 65.1%), with 239 of 604 districts accounting for stunting levels above 40%. The differences between districts were a result of multiple factors, including gender, education, economic status, health, hygiene, and other demographic factors.
- ◆ India is the country with the largest number of children who are stunted at 46.6 million, followed by Nigeria (13.9 million) and Pakistan (10.7 million). The urban prevalence of stunting on average 19.2% compared with 26.8% in rural areas.
- ◆ In the case of wasting, or low weight for height, which affects a greater proportion of rural children than urban, India again tops the list with the most number of wasted children at 25.5 million, followed by Nigeria (3.4 million) and Indonesia (3.3 million).
- ◆ India is also among the countries with more than a million children who are overweight.
- ◆ As part of the report, a case study in Rajasthan found that key areas of infant and young child feeding and micronutrient supplementation were underfunded.

Government's Initiative to Tackle the Problem of Nutrition

Government is implementing several schemes and programs under the Umbrella Integrated Child Development

Services Scheme as direct targeted interventions to address the problem of malnutrition in the country. All these schemes address one or other aspects related to nutrition and have the potential to improve nutritional outcomes in the country.

National Nutrition Mission (NNM):

POSHAN Abhiyaan (National Nutrition Mission) is a flagship programme of the Ministry of Women and Child Development (MWCD), Government of India, which ensures convergence with various programmes i.e., Anganwadi Services, Pradhan Mantri Matru Vandana Yojana (PMMVY), Scheme for Adolescent Girls (SAG) of MWCD Janani Suraksha Yojana (JSY), National Health Mission (NHM), Swachh-Bharat Mission, Public Distribution System (PDS), Department Food & Public Distribution, Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and Ministry of Drinking Water & Sanitation.

The NNM is a comprehensive approach towards raising nutrition level in the country on a war footing. It will comprise mapping of various Schemes contributing towards addressing malnutrition, including a very robust convergence mechanism, ICT based Real Time Monitoring system, incentivizing States/UTs for meeting the targets, incentivizing Anganwadi Workers (AWWs) for using IT based tools, eliminating registers used by AWWs, introducing measurement of height of children at the Anganwadi Centres (AWCs), Social Audits, setting-up Nutrition Resource Centres, involving masses through Jan Andolan for their participation on nutrition through various activities, among others.

The programme through the targets will strive to reduce the level of stunting, under-nutrition, anemia and low birth weight babies.

NNM targets to reduce stunting, under-nutrition, anemia (among young children, women and adolescent girls) and reduce low birth weight by 2%, 2%, 3% and 2% per annum respectively. Although the target to reduce Stunting is at least 2% per annum, mission would strive to achieve reduction in Stunting from 38.4% (National Family Health Survey-4) to 25% by 2022 (Mission 25 by 2022).

More than 10 crore people will be benefitted by this programme. All the States and districts will be covered in a phased manner i.e. 315 districts in 2017-18, 235 districts in 2018-19 and remaining districts in 2019-20.

Other initiatives includes, three existing programmes, designed to reach populations most at risk, namely, the Integrated Child Development Services (ICDS), with its network of 1.4 million Anganwadi Centres, reaching almost 100 million beneficiaries who include pregnant and nursing mothers and children up to 6 years; mid-day meals (MDM) that reach almost 120 million children in schools; and the Public Distribution System (PDS) that reaches over 800 million people under the National Food Security Act.

Analysis of the Schemes and Measures to be dealt on Priority Basis

Both the National Nutrition Strategy and the NNM have recognised the criticality of working collaboratively across Ministries; yet both are silent on the constructive role that the private sector, development agencies and civil society can and must play in realising these ambitious goals.

Similarly, several reports evaluating Mid-Day Meal programme have highlighted that in a majority of states, teachers spend one to two hours daily on activities related to the meals

thereby detracting from precious teaching time. Additionally, there are issues with the poor functionality of kitchen sheds, adulteration and pilferage of food grains as well as suboptimal quality of meals.

Altering the fundamentals of poor nutrition requires multiple and sustained interventions over a period of time — increased availability and accessibility of nutritious food, potable water, hygiene and sanitation, primary health care, etc. The approach, commitment and resources therefore have to be inter-generational, multi-sector, multi-dimensional and multi-year. To simplify a complex issue, the challenge for India is to simultaneously address insufficient and poor diets, inadequate hygiene and sanitation and better management of disease and infections.

Success in this domain will be driven by coordinated action on multiple fronts, but there are at least three urgent priorities.

One, to adequately re-engineer the ICDS, MDM and PDS for greater effectiveness. This is an ideal initiative for public-private partnerships as the strength of good private sector companies is in creating and designing frameworks, structures, processes and metrics for action, implementation and tracking.

The key advantages of this disaggregated supply model are that it engages local communities, generates employment and ensures minimal leakage as it works with and inside the community. This will also ensure that space and other constraints of lack of hygiene at Anganwadi Centres do not become impediments in the supply of nutritious food.

Two, to mandate and scale staple food fortification comprising edible oil, wheat, rice and dairy products, in

addition to salt. There is persuasive evidence from several countries of the efficacy and cost-effectiveness of large-scale staple food fortification to address “hidden hunger” or micro-nutrient deficiencies. The effectiveness of iodised salt in significantly reducing iodine deficiency is well-established in India empirically. Enrollment of private sectors could be ensured to bring efficiency in these tasks.

Three, multiple campaigns designed to inform, communicate and educate on nutrition-specific and nutrition-sensitive behaviours like breast feeding, diet diversity, hand-washing, de-worming, safe drinking water, hygiene and sanitation. Nutrition has to be “marketed” and made interesting, engaging, simple and personally relevant, this is an expertise where the private sector can meaningfully contribute.

Other measures could be greater flexibility to states under ICDS. The sub

group of Chief Ministers set up to review Centrally Sponsored Schemes (CSSs) has universally recommended a flexi component in every CSS in addition to decentralized decision-making by the states on lines of Rashtriya Krishi Vikas Yojana. States will devise interventions to suit their local contexts. The success of Atal Bal Mission in Madhya Pradesh, which provided some united funds at the district level to supplement grants under the ICDS scheme, is case in point.

Way Forward

Poor nutrition will fracture the dreams and aspirations of India to become a global player in manufacturing and other industries. The human dividend on which we are banking is actually a huge liability given that one out of every three children is born underweight and unable to realise the full potential for physical growth and cognitive development, leading to lower levels of productivity.

Poor nutrition is poor humanity. Article 47 of the Constitution mentions the “duty of the state to raise the level of nutrition and the standard of living and to improve public health. The state shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties.” We cannot have this broken promise nearly seven decades after the Constitution was written.

The National Nutrition Strategy (NNS) and the Poshan Abhiyaan has set very ambitious targets. For purposeful action, it is imperative to have common goals and metrics for improving nutrition, which can then be disaggregated by year, State, district, etc., into a nutrition dashboard, with metrics that are clear and measurable and a real-time tracking mechanism, much like we track economic data.

Exploring new models to address the structural and systemic issues on a priority basis, learning from what has worked or not, and single-minded focus on implementation will be critical to delivering better nutritional outcomes and meeting the Sustainable Development Goals, to which India is a signatory. Additionally, initiatives like Swachh Bharat Abhiyan, where implemented, will contribute positively to nutrition outcomes, and well-structured public-private partnerships could be the catalyst.

Rising Obesity : A Potential Health Crisis

India must step up its efforts to fight overweight and obesity just as it has been doing with wasting and stunting. Between 1980 and 2015, obesity doubled for children and tripled for adults; an additional 2.6 million children will be obese in India by 2025, a trend that will not reverse without action.

Rising obesity is putting pressure on already fragile health systems in India by posing a high risk of chronic diseases such as cardiovascular diseases, diabetes and some cancers (clubbed together as non-communicable diseases, or NCDs). Research shows that Indians have higher levels of body fat and lower levels of lean muscle when compared to many other populations. Therefore, the risk of cardiovascular diseases and diabetes operates even below global thresholds for defining overweight and obesity.

Policy responses should include agricultural systems that promote crop diversity (to enable dietary diversity) as well as regulatory and fiscal measures (to decrease the availability, affordability and promotion of unhealthy foods, while making healthy foods more accessible). Lancet study on India has showed that higher taxes on junk food can actually lead those on lower incomes to live healthier lives.

Even in clinical settings, counselling and care are needed. Instead of being downgraded as ways of managing “poor lifestyle choices”, obesity management, prevention and treatment should be provided as essential health services targeted at a condition that undermines health in many ways. This would help reverse the stigma attached to obesity even by health professionals (which has also undermined the response to it).

India should link obesity and undernutrition and treat them as twinned challenges to be jointly addressed under the universal health coverage umbrella. Tackling obesity benefits the economy and the environment, as healthy and sustainable diets are good for productivity levels and the planet. It is now time to get ahead of this unfolding health crisis and save lives and money in the process.

General Studies Paper- II

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

Topic: Issues relating to poverty and hunger.



2. NEED FOR RESTRUCTURING MINIMUM WAGES

Why in News?

The AAP government plans to implement the minimum wages scheme under which an unskilled worker is expected to get Rs 14,000 per month, semi-skilled ones would receive Rs 15,400 and skilled worker would get Rs 16,962. The workers could expect another hike soon as the government aims to propose new rates under which an employer will have to pay Rs 14,842 to an unskilled worker, Rs 16,341 to a semi-skilled and Rs 17,991 to a skilled one.

Introduction

Indian economy, in its elements, is a typical example of double-crossing. While the organised sector is excessively regulated by a litany of regulations and labour law, the unorganised sector is in the abyss of development. The unorganised sector which accounts for more than 50% of the employable population is abused by the wealthy and aristocratic employers. What worker community need is a well-balanced, sophisticated mechanism that is instrumental in regulating the wages and employment of workers in the unorganised sector. In a bid to bring tougher sanctions on the employers, legislators introduced the Minimum Wages Act in India in the year 1948.

Under the Minimum Wages Act, 1948, both Central and State government have dominion over fixing the wages. The State governments fix their own scheduled employments and further release the rates of Minimum Wage along with the VDA (Variable Dearness Allowance). Wage boards are set up to review and fix minimum wages at specified intervals. The wage rates in scheduled employments differ across states, sectors, skills, regions and occupations owing to a lot of

differentiating factors. Hence, there is no single uniform minimum wage rate across the country and the revision cycle differs for each state.

Background

As per the Economic Survey 2017, inter-state labour mobility averaged between 5 to 6.5 million people between 2001 and 2011, yielding an inter-state migrant population of about 60 million, a rise of 4.5 per cent per annum and double the figures of the previous decade. According to conducted studies, more than 100 million migrant labourers live in cities of whom, around 40 million work in the construction sector, followed by 20 million employed as domestic workers, 11 million in textile industries and 10 million in brick kilns. Street vendors, cab drivers, watchmen, hotel staff, coolies and various other menial jobs are drawn from migrant labour, without whose services life in today's cities comes to a grinding halt.

The major source states of migrant labour, in descending order, happen to come from Uttar Pradesh, Bihar, Madhya Pradesh, Punjab, Rajasthan, Uttarakhand, Jammu & Kashmir and West Bengal, and the destinations unsurprisingly are Delhi, Maharashtra, Tamil Nadu, Gujarat, Andhra Pradesh and Kerala with their rapid economic progress and exponential urbanisation. Delhi itself has more than 5.5 million labourers, around 85 per cent of whom are in the unorganised sector. Migrant labourers arriving in millions every year from the villages, adding to the manufacturing and service sectors in urban areas. Spatial distribution of urbanisation has also been emphasised by economists so that the rural surplus labour can be absorbed to optimum levels.

What is Minimum Wage?

As per the Indian Constitution, 'Minimum Wage' has been defined as the level of income for skilled and unskilled workers which ensures a sustaining standard of living while also providing for some measure of comfort. A minimum wage not just supports the bare level of employment, but also seeks for viable continuous improvement. It aims at preventing exploitation of labour.

Minimum Wages Act was enforced to ensure the employers did not exploit employees with insufficient wages. The Act is applicable on all establishments, factories, place of business and industry types. Unscheduled industries are generally excluded, though a state can add a minimum wage for an occupation or specify it for a sector during a revision cycle.

Parameters for Determining the Minimum Wages

While fixing the basic remuneration as per the Act, various parameters have to be considered. The following are the basic factors that have to be evaluated to ascertain the wages as suggested by the Indian Labour conference in 1957.

- (a) Three square meals with a minimum calorie requirement of 2700 kcal per average Indian adult per day
- (b) Cloth requisite of 72 yards per annum per family,
- (c) Rent as per the minimum area provided under the relevant state government's Industrial Housing Scheme (IHS) and
- (d) Fuel requirements, electricity and other miscellaneous items of expenditure which account for 20% of remuneration,
- (e) Education of children, medical expenditure, minimum leisure

including festivals/ceremonies and provision for old age, marriage etc. should further constitute 25% of the total minimum wage.

Minimum Wage in India

Legislative protection for workers to receive a minimum wage, can be considered as the hall mark of any progressive nation. It is one of the fundamental premises of decent work. In India, the Minimum Wages Act, 1948 provides for fixation and enforcement of minimum wages in respect of scheduled employments. The Act aims to prevent sweating or exploitation of labour in the unorganized/informal sector. The Act also requires the appropriate government (both at Centre and States) to fix minimum rates of wages in respect of employments specified in the schedule and also review and revise the same at intervals not exceeding five years.

In July 2015 the National Floor Level of Minimum Wage was raised to Rs 160 per day. National Floor Level Minimum Wage has been revised again to Rs 176/day. The new rates came into effect from June 1, 2017. Since the respective state governments have been empowered to independently fix minimum wages, disparities between wages in neighboring states are common. In order to reduce this problem and bring comparability the Central government has set up 5 regional committees for harmonization of minimum wages.

Classification of Workers

(i) **Unskilled:** An unskilled employee is one who does operations that involve the performance of simple duties, which require the experience of little or no independent judgment or previous experience although familiarity with the occupational environment is necessary. His work may thus

require in addition to physical exertion familiarity with variety of articles or goods.

(ii) **Semi-skilled:** A semiskilled worker is one who does work generally of defined routine nature wherein the major requirement is not so much of the judgment, skill and but for proper discharge of duties assigned to him or relatively narrow job and where important decisions made by others. His work is thus limited to the performance of routine operations of limited scope.

(iii) **Skilled:** A skilled employee is one who is capable of working efficiently of exercising considerable independent judgement and of discharging his duties with responsibility. He must possess a thorough and comprehensive knowledge of the trade, craft or industry in which he is employed.

(iv) **Highly Skilled:** A highly skilled worker is one who is capable of working efficiently and supervises efficiently the work of skilled employees.

Domestic Workers

Most domestic workers are from the marginalized sections of society and a large number of them are migrant workers. Workers range from full-time to part-time workers, skilled and unskilled workers. The Draft National Policy on Domestic Workers as recommended by the Taskforce on Domestic Workers provides a definition of a domestic worker as: "For the purpose of this policy, the "domestic worker" means, a person who is employed for remuneration whether in cash or kind, in any household through any agency or directly, either on a temporary or permanent, part time or full time basis to do the household work, but does not include any member of the family of an employer.

Law and Policies: Payment Of Wages Act

The Government has vide notification dated August 28, 2017 revised the salary threshold for the applicability of

the Payment Wages Act, 1936 ("Wages Act") from Rs. 18,000/ per month to Rs. 24,000/ per month. Consequently, the provisions contained under the Wages Act will now be applicable to employees earning wages up to Rs. 24,000/per month, covering a significantly larger number of employees within the purview of the Wages Act. The Wages Act regulates the payment of wages to persons employed in factories, railways, industrial and other establishments specified under the Wages Act. It contains provisions with respect to the responsibility for payment of wages, fixing of wage-periods, time of payment of wages, permissible deductions, maintenance of records and registers and penal consequences for non-compliance of the provisions stipulated under the Wages Act.

Parliament is currently deliberating enacting the Labour Code on Wages, which will consolidate the Wages Act, the Minimum Wages Act, 1948, Payment of Bonus Act, 1965 and the Equal Remuneration Act, 1976. The Act and various other regulations which intervene in the labour market operations are replete with loopholes. Thus in a bid to bring unilateral convergence in the regulatory regime of the labour market, the Wage Code Bill was introduced in 2017. The bill seeks to merge 4 Acts, namely Payment of Wages Act of 1936, the Minimum Wages Act of 1949, the Payment of Bonus Act of 1965, and the Equal Remuneration Act of 1976. The bill could result in a paradigm shift in the labour market operations considering the unique mandates in the code. The code seeks to ascertain the basic pay for minimum subsistence based on geographical contours. Moreover, the bill, if enacted, would set up judicial forums and appellate tribunals to look into labour disputes. The bill also envisages an increased accountability on part of the concerned officer.

However, the government turned down the recommendation of the Seventh Pay Commission to set Rs 18,000 as the monthly minimum wage.

Global Wage Report 2018 / 19

The International Labour Organisation's Global Wage Report has put into sharp relief one of the biggest drags on global economic momentum: slowing wage growth. Global wage growth, adjusted for inflation, slowed to 1.8% in 2017, from 2.4% in 2016, it shows. Worryingly, this is the lowest rate since 2008. Excluding China (given its high population and rapid wage growth it tends to skew the mean), the average was even lower (1.1% in 2017 against 1.8% in 2016).

Global wage growth in 2017 was not only lower than in 2016, but fell to its lowest growth rate since 2008, remaining far below the levels obtaining before the global financial crisis. Global wage growth in real terms (that is, adjusted for price inflation) has declined from 2.4 per cent in 2016 to just 1.8 per cent in 2017. In emerging and developing countries of the G20, real wage growth has fluctuated in recent years, rising from 2.9 per cent in 2015 to 4.9 per cent in 2016, and then

falling back to 4.3 per cent in 2017. For India's policymakers, the message is clear: to reap the demographic dividend we need not only jobs, but wage expansion that is robust and equitable.

Way Forward

A petition has been filed in the Supreme Court seeking its intervention to bring dignity to "India's invisible workforce in the informal sector" — the domestic workers. The petition asked the Supreme Court to lay down guidelines to protect the workers' rights. The petition said Indian homes have witnessed a 120% increase in domestic workers in the decade post liberalisation. The petition sought the recognition of domestic work under the Minimum Wages Act, 1948. Their work hours should be reduced to eight a day and they should be given a mandatory weekly off as a basic right under Article 21.

At present, domestic workers often face very low wages, excessively long hours, have no guaranteed weekly day of rest and at times are vulnerable to physical, mental and sexual abuse or restrictions on freedom of movement. Exploitation of domestic workers can

partly be attributed to gaps in national labour and employment legislation, and often reflects discrimination along the lines of sex, race and caste.

Wages for the domestic workers are determined by factors such as tasks performed, hours of work, their social status, skills (or the lack of it), the need for flexibility and other labour market conditions. There are on-going debates over the norms for setting wages. These debates include several tricky issues such as whether the wage ought to be time rated or piece rated, in kind, hourly or weekly, part-time or full time; based on house size or persons per household, over time; adjusted for boarding, include medical care and other necessities and multiplicity of employers.

General Studies Paper-II

Topic: Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

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3. QATAR'S DEPARTURE FROM OPEC AND ITS IMPLICATIONS

Why in News

Qatar's Energy Minister Saad Sherida al-Kaabi on December 3, 2018 announced that the country will withdraw from the Organization of the Petroleum Exporting Countries (OPEC) in January 2019. This decision to quit OPEC was confirmed by Qatar Petroleum, the state oil company. It has been a member of OPEC since 1961, and the decision to pull out after all these decades comes at a turbulent time in Gulf politics, with Doha under a

boycott by former neighbouring allies, including Saudi Arabia for 18 months.

Introduction

OPEC, a cartel of 15 countries that produce about 45% of the world's oil and contain over 80% of its "proven" reserves. It was founded in 1960 by Saudi Arabia, Iraq, Iran, Kuwait, and Venezuela. The main aim of the OPEC is to coordinate and unify the petroleum policies of its Member Countries and ensure the stabilisation of oil markets in order to secure an efficient, economic

and regular supply of petroleum to consumers. OPEC has a very big influence on global oil prices, which play a crucial role in determining the economic health of many countries, including India. Saudi Arabia dominates the cartel, having pumped 11 million barrels per day in October.

Qatar's decision to end its nearly 60-year-old membership in OPEC caught many observers by surprise. Explaining the motivation behind the decision, Saad Sherida al-Kaabi, Qatar's minister of state for energy

affairs, said that Qatar's exit from OPEC "is not political, it was purely a business decision for Qatar's future strategy towards the energy sector." While he denied that, there were political reasons for leaving OPEC, it is impossible to see its decision as being independent of Doha's broken diplomatic relationship with Riyadh, which has been relentlessly hostile to it.

A Brief Background

Qatar has long showed an independent mind in foreign policy that does not always align with the priorities of its regional Arab neighbours. This includes having a close economic and diplomatic relationship with Shia Iran, Sunni Saudi's great regional rival.

On June 5, 2017, Saudi Arabia, UAE, and Bahrain cut ties with Qatar, directed Qatari citizens to leave within 14 days, and forbade their citizens from going to or staying in Qatar. Riyadh claimed Qatar had refused to end ties with "terrorists", after Doha declined to fulfil 13 demands that were presented to it, including cutting diplomatic relations with Tehran and military ties with Turkey, shutting down the TV station Al Jazeera, and aligning with other Arab countries "militarily, politically, socially and economically".

Qatar said the demands amounted to "surrendering our sovereignty", which it would "never" do. Doha has backed the Muslim Brotherhood and Hamas, but it is also part of the US-led war on the Islamic State, and has assisted the rebels fighting Bashar al-Assad's regime in Syria. Over the last year and a half, hopes of reconciliation have dimmed, and Doha has only deepened its cooperation with Iran and Turkey, and with political Islamist organisations.

Reasons to Leave OPEC

Given that the decision was taken in the context of the ongoing Saudi-led blockade on Qatar, many commentators

interpreted it as a political act and a rebuke of an organisation increasingly seen as a tool of Saudi power projection.

However, this assessment is too simplistic and does not reflect Qatar's long-term economic strategy. What defines Doha's energy sector is not its oil production, but its capacity and global presence in the natural gas sector. It has strategically cultivated its natural gas sector in 1987 at a time when many in the industry hardly saw any potential in gas. This decision paid dividends many times over: Qatar today has emerged as the world largest exporter of Liquefied Natural Gas (LNG), (producing almost 30 percent of the world total), GTL (Gas-to-Liquids) and helium. Qatar also shares the world's largest known natural gas field, the 'North Field' with Iran. The revenue from the natural gas sector has propelled its economy and has given it special importance globally. Qatar recognises that it is cleaner fuels like LNG that have a brighter future than oil, given the global trend to moving towards cleaner fuels. There is much more uncertainty about the growth in demand for oil than there is for natural gas.

Thus, Qatar is not only determined to maintain its leadership position in the LNG sector but also to ensure that the global market for LNG grows. The only way it could do that is by cooperating with other LNG producers through targeted investments to encourage long-term growth in demand for natural gas.

Also the value of OPEC to some of its members - particularly the smaller producers like Qatar (whose oil output is just 2 percent of that of the organisation) - has been progressively waning for some time; they increasingly feel they have very limited influence over decision-making. OPEC remains essentially a Saudi-led cartel whose global relevance is in significant decline after the so-called "shale revolution".

Qatar's Departure and its impact

Global Oil Prices: Not quite. Of OPEC's 15 members, Qatar ranks 11th in oil production and is the fifth smallest producer after Ecuador, Congo, Gabon and Equatorial Guinea. It is a tiny player that pumped 609,000 barrels a day in October, only 2% of OPEC's total output of 32.9 million barrels per day. However, over the last many decades, it has played a role mediating internal rivalries in OPEC and striking production-cut deals with producers like Russia. This is where its absence may hurt OPEC a bit.

On India: Qatar has limited influence on OPEC's pricing decisions. From India's perspective, its position as the world's top LNG exporter (annual production of 77 million tonnes per year) and an influential player in the global LNG market is more pertinent. Qatar is India's major LNG supplier and a major Foreign Portfolio Investor (FPI) in Indian equities markets. It has committed over Rs 40000 crore to the Bharatmala road projects in India and is open to further investments. In this case, what is good for Qatar is good for India. Once Qatar pulls itself out of the OPEC, it will have freedom to decide and fix the prices of LNG without any pressure of the Gulf nations. This would directly benefit India. Petronet LNG which is India's biggest gas importer, buys 8.5 million tonnes of Liquefied Natural Gas (LNG) every year from Qatar under a long-term contract, accounting for 44 percent of India's LNG imports.

India's Oil Import and its Challenges

Heavily dependent on imports to meet its burgeoning energy requirements, about 80 per cent of India's oil is shipped in from foreign countries. Iran is India's third biggest oil supplier, and in 2016-17, was the source of close to

13 per cent of India's oil exports. Saudi Arabia and Iraq head the list, with the latter overtaking the former in the 2017-18 financial year.

A look at oil imports from various countries:

The restoration of sanctions on Iran, following the United States' withdrawal from the Joint Comprehensive Plan of Action (JCPOA), set to have a drastic effect on Iran's economy. It will also impact India - which is second largest importer of Iranian oil, requiring massive quantities of oil to fuel their rapid industrial development.

However India has been granted waiver from Iran sanctions, which would allow Indian oil companies to continue to import about 1.25 million tonnes of oil a month till March from Tehran. But the future remains uncertain.

There are three possible approaches to ensure oil inflows from abroad are not seriously affected by the sanctions. India could choose to

act, using a combination of these, or to focus on a singular approach.

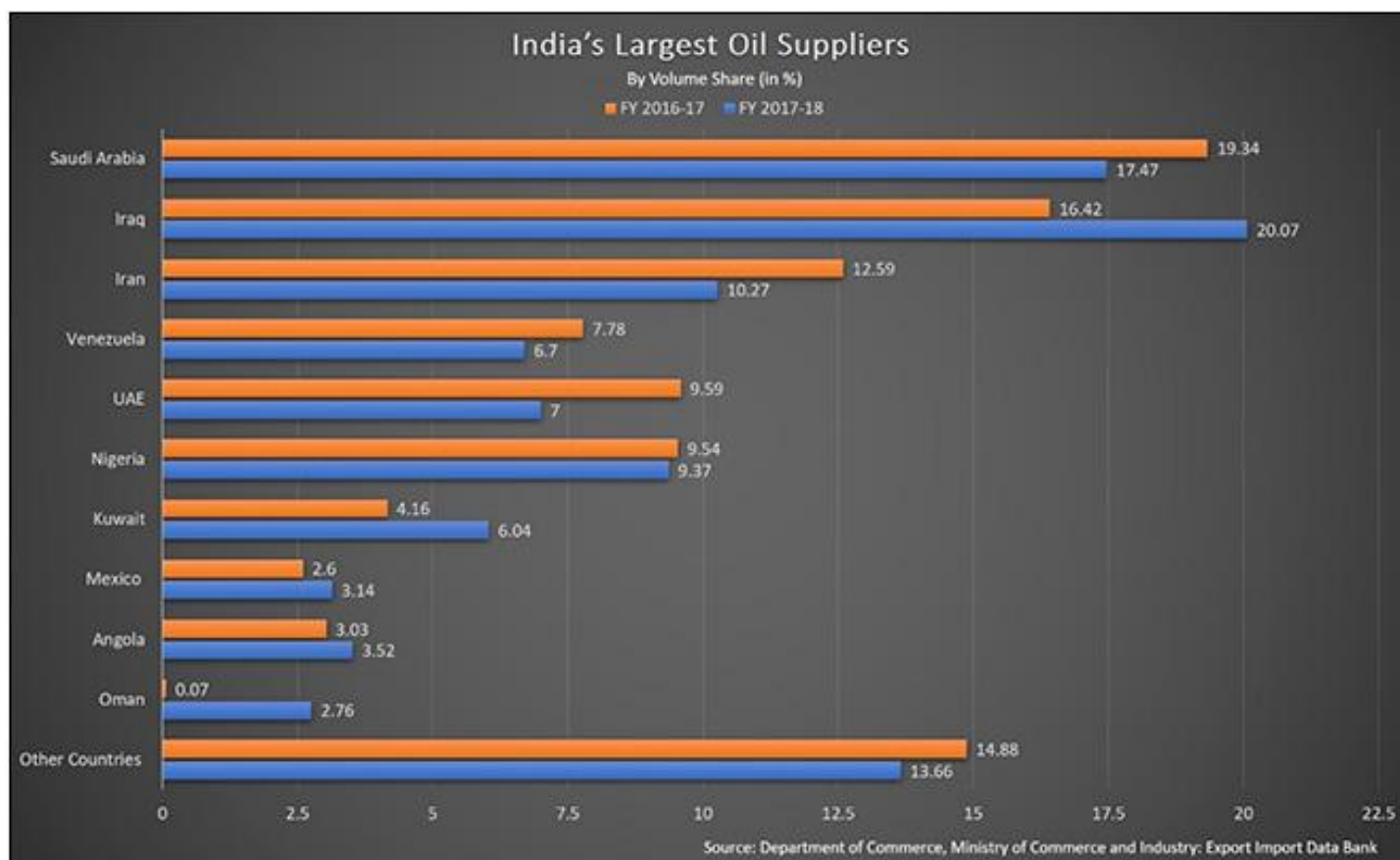
The first approach is to attempt to secure an extension in waiver from the United States, thereby allowing India to continue its trade with Iran. The second approach involves ramping up imports from nations that already supply India with substantial quantities of oil. Suitable examples would be Iraq, the United Arab Emirates (UAE), and Kuwait. These three nations have proven themselves to be reliable trading partners, and India has witnessed significant growth in their oil exports in the recent past.

The third possible approach could be to scour for new and willing partners, and work dedicatedly towards building a relationship of trust and understanding, albeit in a short period of time. Two nations come to mind, for the initiation of such an approach – Oman, and the United States. With regards to Oman, India has witnessed an exponential rise in oil imports in the last year– with growth

pegged at 1071 per cent increase in actual quantity from 2016-17 to 2017-18. This is coupled with the acquisition of Shell's 17 per cent stake in Oman's Makhaizna Oil Field by Indian Oil Corp (IOC) in April. India must continue to work on expanding and enhancing growth in the upstream sector, using this acquisition as a starting point. It must also work towards ensuring that the boom in Omani imports does not level off unexpectedly.

American oil companies that are turning their heads towards India – the world's third largest oil consumer, to ensure stability of shale trade. In the face of a hike in Chinese tariffs on US Oil imports as part of the ongoing trade war, India can prosper from the fact it provides the next market for American oil.

Also, India is coordinating with China and other Asian countries to raise voice against Asian premium charged by Organisation of the Petroleum Exporting Countries(OPEC). Asian Premium is extra charge being



collected by OPEC countries from Asian countries when selling oil in comparison to western countries. India sources about 86% of crude oil, 75% of natural gas and 95% of LPG from OPEC member nations. It has been voicing its dissent against this discriminatory practice and has called for replacing Asian Premium with Asian Discount (dividend). India has emphasized implementation of 'Responsible and Reasonable Pricing' by oil producing countries, given importance of Asian markets for OPEC, particularly fast growing energy markets in the region as they are reliable and continued customer. The removal of discriminatory Asian Premium will allow poor Asian countries including India to provide energy to people who have been deprived of energy so far.

Way Forward

Energy is integral for an individual and collective progress of the society. It has become a strategic commodity considering the implications it has on sustained growth of economy and human development. Hence, it does not come as a surprise that it has acquired centre stage of policy formulation for e.g. India Technology Vision 2035.

Stakes for India become particularly high, as it aims to be a developed nation by uplifting many from clutches of poverty, up scaling basic infrastructure, provisioning of basic necessities developing human skill, employment generation and manufacturing abilities. Energy is pivotal for given objectives, and such ambitious target achievement will push energy consumption many folds. Unfortunately, India is energy starved in terms of availability per unit and development of other sources of at present.

Dependence on Fossil Fuel continues to be a worrying trend primarily, Secondly, Geo-politic vulnerability, transfers the shock directly to import dependent country like India. Fluctuation in prices, war, breakdown in international supply and other issues constantly mar the prospects. Thirdly, Use of obsolete technology, has increased the production, mining and exploration costs. Increased cost in the unit of power has made many providers to switch over to imports than developing India's own resources. Fourthly, Climate Burden, of the energy production is also an important factor worth considering.

Apart from tackling these challenges associated with conventional

energy sources, particularly oil, and to meet the increasing gap between the energy demand and supply, we need to look beyond and make a progressive shift towards renewable energy. Renewables have enormous potential to meet the growing energy requirements of the increasing population, while offering sustainable solutions to the global threats of climate change. The ambitious target of production of renewable energy amounting to 175GW by 2022 and plan to increase the electric vehicle by 2030 are welcome steps in this direction.

Simultaneously, development of new partnerships like International Solar Alliance, deploying new technology to harness the renewable better like off-shore wind farms will help to secure its energy interest.

General Studies Paper- II

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

Topic: Important International institutions, agencies and fora- their structure, mandate.



4. QUEST FOR FARMERS PROSPERITY

Why in News?

All India Kisan Sangharsh Coordination Committee, an alliance of various farmer bodies, has organised the protest called Kisan Mukti March. Led by opposition leaders and activists, nearly one lakh farmers reached Delhi recently for a march to Parliament. The protest highlighted the deepening distress among the population in the countryside, where there is growing concern about diminishing agricultural profits because many are being driven into debt.

Introduction

In a country where half the population of 1.3 billion depends on agriculture, low farm profits have long been a challenge and prompted promises by Prime Minister Narendra Modi to double rural incomes by 2022. According to the government, the average income of a farmer is about \$100 a month. But for a majority of them, the income is probably less than \$50 a month. That is the level at which they survive. And one of the principal reasons for that is that they

don't get enough price for their crops. Low prices for crops are not the only problem: increasingly erratic weather patterns pose a new challenge in a country where nearly half the farmers lack access to irrigation.

Although the rural crisis has been festering for many years, economists partly blame the deepening crisis on a sweeping currency ban that led to widespread cash shortages two years ago and affected their incomes. Many farmers lost working capital, they had to borrow money from the banks or

from the local moneylenders at high interest rates, so their costs went up. Since costs go up and revenue comes down, then income gets squeezed. According to various studies, nearly half of Indian farmers have said they want to quit working on the land but cannot do so because of a lack of alternate livelihoods.

Analysis of major schemes to support farmers

Investment support mechanism:

The Telangana government's recent announcement of the Rythu Bandhu scheme has spotlighted the policy of utilising cash transfer to assist land-owning farmers with a non-agricultural income — instead of the traditional policy measures of price interventions, trade restrictions and farm loan waivers. While the scheme is nominally intended as investment support for inputs such as seeds and pesticides, it implies a transfer of Rs. 8,000 per acre for every landowning farmer over two crop seasons.

As Credit Suisse notes, the scheme has an inbuilt bias for large farmers, allowing 9% of farmers with more than five acres to earn 34% of the total payout. Rural India's economic situation continues to worsen. A recent survey by the National Bank for Agriculture and Rural Development (All India Rural Financial Inclusion Survey) shows that the average monthly income of rural households is Rs. 8,059, with agricultural households deriving only 43% of their income from agriculture; most of it is from providing daily wage labour and government jobs. While agricultural households typically had a higher income than non-agricultural households, they had higher debt on average (Rs. 1,04,602 and Rs. 76,731, respectively).

Small and marginal farmers with less than two hectares of land account for 86.2% of all farmers in India, but

own just 47.3% of the crop area, according to numbers provided by the recently released 10th agriculture census 2015-16.

In comparison, semi-medium and medium land holding farmers owning between 2-10 hectares of land account for 13.2% of all farmers, but own 43.6% of crop area, the survey showed. The survey also showed that the proportion of farms that are operated by women rose from 12.8% in 2010-11 to 13.9% in 2015-16, signifying that more women are managing farm operations.

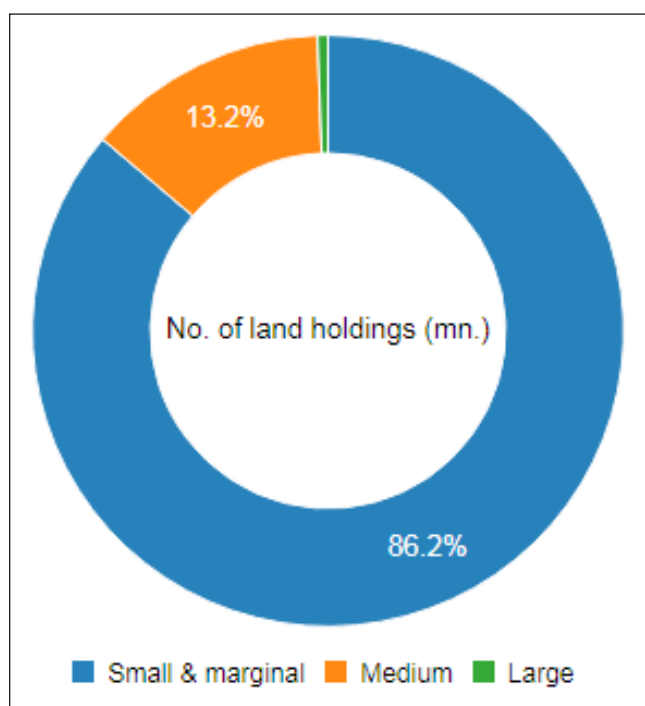
Here's a breakdown of operational land holdings and area:

The existence of a large number of small and marginal farmers, close to 126 million according to the survey, means it is challenging for the government's extension arms to reach them with new technology and farm support schemes.

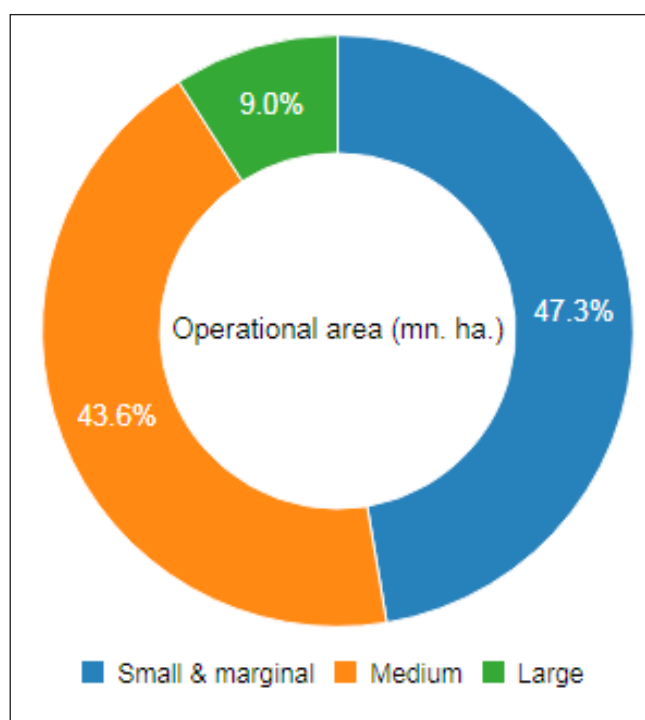
Further, these 126 million farmers together owned about 74.4 million hectares of land — or an average holding of just 0.6 hectares each — not enough to produce surpluses which can financially sustain their families, explaining the rising distress in Indian agriculture.

Insuring crops : Pradhan Mantri Fasal Bima Yojana (PMFBY)

A highly subsidised Pradhan Mantri Fasal Bima Yojana (PMFBY)



was launched in 2016 to provide insurance to farmers from all risks. In comparison to earlier schemes, the PMFBY is more farmer friendly, with sums insured being closer to the cost of production. The scheme's linkage with parallel programmes like the 'Jan Dhan Yojana' and 'Digital India' makes it a truly inclusive and welfare-based scheme. The scheme therefore led to increased coverage of 5.7 crore farmers in 2016 and the sum insured



crossed ₹200,000 crore. However, notwithstanding its ambition and intent, the scheme since its operation has been scrutinised more for its misses than its hits.

Some handicaps of the scheme are: outmoded method of crop loss assessment; inadequate and delayed claim payment; high premium rates; and poor execution.

To improve the efficacy of the PMFBY, technology use must be intensified. With options such as available today, such as detailed weather data, remote sensing, modelling and big data analytics, the exercise of monitoring crop growth and productivity can be not only more accurate and efficient but also resource saving.

Universal and free coverage for all smallholders: Farmers' awareness about the scheme and crop insurance literacy remain low in most States, especially among smallholders in climatically challenged areas in most need of insurance. The complicated enrolment process further discourages farmers. To increase insurance coverage we should think of a system whereby farmers do not need to enroll themselves and every farmer automatically gets insured by the state.

Faster and appropriate claim settlement, timely estimate of loss assessment, improved and transparent insurance scheme design etc are the areas which need to be focused on to improve its efficiency.

The government has sought to double farmer income by raising minimum support prices, but such initiatives would apply directly only to 48% of rural India, with non-agricultural households being left behind. Perhaps we need to look at alternative sources of income.

Diversification is the key

The conversation on raising farmer income needs to embrace non-farm diversification, an important pathway for empowering landless labourers and marginal farmers, as development economist Daniel Coppard recommended in a 2001 report.

Diversification, away from marginal farming, will help to overcome land constraint to income growth, while allowing farmers to cope with exogenous shocks through additional income. In some cases, it even allows them to reinvest in productivity enhancing agricultural technologies. Within this, there are three key sectors, where appropriate reforms can lead to significant income support for marginal farmers.

Opportunity in livestock

The livestock sector can offer significant opportunities for bolstering non-farm income. The current breeding policy (based on exotic blood and artificial insemination) needs to be revamped. A national breeding policy is also needed to upgrade the best performing indigenous breeds. Buffalo breeding ought to be given more attention, while poultry breedings should be focussed on conservation. State governments should be encouraged to participate in national breeding policy implementation, creating an environment for competition among alternative suppliers of artificial insemination. Consensus must be built among breeders to develop indigenous breeds. The feed supply (currently inadequate) needs to be mitigated through greater imports, with feed technology packages developed for extension dissemination. Geographical information system-based analysis must be utilised to map production systems. Private investment must also be encouraged. Animal health care should become a priority, with greater investment in preventive health care.

Government initiative like National Livestock Mission, Rashtriya Gokul Mission, Dairy Entrepreneurship Development Scheme, National Programme for Bovine Breeding and Dairy Development, Fodder development scheme etc can go a long way, provided implemented properly.

The government needs to create better incentive structures for investment in livestock in the States that are lagging while harmonising rules, regulations and regulatory authorities across States. State governments should sponsor research and assessment of the market, along with highlighting investment potential.

Focus on migrant workers

We should also embrace the fact that agricultural labourers routinely seek construction-related daily wage labour to bolster their income. Improving the conditions of migrant workers in the construction sector requires a multi-pronged approach. First, we have to enable migrant workers to get deserved access to various government (Central and State) schemes, despite the lack of identity proof. Access to Anganwadi facilities should be provided regardless of their identity documents. While multiple laws exist for the welfare of construction workers, compliance is abysmal. The penalties for non-compliance have to be increased to a significant fraction of the construction cost, payable by the builder. Registration of workers with the Welfare Board should be made mandatory and be the responsibility of the contractor and the builder. If the contractor is found to engage or employ any worker without a registration card/ID, penalties (monetary and non-monetary) should be imposed, which would then be used for improving awareness and penetration of registration cards and their benefits. The registration cards should be linked to their Jan-Dhan

accounts, and transfer of payments on a periodic basis be made directly to their accounts.

In order to improve the condition of women, strict anti-harassment laws should be implemented. Creche facilities at construction sites should be provided to also ensure that children are not neglected; they often play with gravel and dust, which can threaten their health. Utilisation of a construction cess has to be improved if we are to make any difference to the lives of our construction workers. Workers should also be provided with training and skilling in their areas of interest, as it could lead to higher earnings and credit-worthiness.

Encouraging rural entrepreneurship:

Micro and small scale enterprises have existed in rural India since ages in the form of traditional skills. Contributing more than 52 per cent of the GDP and making available more than 75 per cent of all labour force in India, the rural sector is best poised for a rapid expansion in the small and medium industry arena.

Various government's initiatives such as Entrepreneurship Development Institution Scheme; Rajiv Gandhi Udyami Mitra Yojana (RGUMY); Performance and Credit Rating Scheme (implemented through NSIC) are steps in the right direction.

To further the efficiency, Credit Information of the rural entrepreneurs has to be developed, SWOT Analysis: Strengths, Weaknesses, Opportunities, and Threats of small businessmen have to be identified and should be given proper training. Innovators club should be established. Marketing management skills should be improved. Establishing agro food processing units, Non-farm product business establishment,

encouraging the skilled and professional people NRIs and wealthy people of their respective villages should establish/assist rural industries can help in long run.

Businesses around farming, including processing, packaging, transportation, distribution, marketing and financial services, has lot of potential to create jobs for young people, especially those in rural areas. The GOBAR-DHAN scheme, launched by Ministry of Drinking Water & Sanitation with its focus on keeping villages clean, increasing the income of rural households, and generation of energy from cattle waste can be a example for innovation.

On a similar line, Agriculture Export Promotion Plan Scheme, of Agricultural and Processed Food Export Development Authority (APEDA) need to be operationalized in effective and efficient manner to provide assistance to the exporters of the agricultural and processed food products under the various components of the scheme viz. Infrastructure Development, Market Promotion, Quality Development and Transport Assistance. This will help farmers in realizing the actual price of their produce.

Way forward

Strengthen agricultural insurance, reforming agricultural marketing and introduction of model contract farming act are some

of the step need to be taken immediately. Integration of markets is very critical, farmers shall be given freedom to sell. Labour and land reforms need to be revised to increase farm productivity and also to decrease the dependence on agriculture. Making agriculture affordable by decreasing costs of inputs also need to be focused upon.

If agriculture becomes ecologically sensitive and sustainable, it also becomes affordable. Management of surface and ground water need to be radically reformed. Colonial common law or code that gave a right to land owner to exploit underground water need to be revised. Crop diversification also needs to be encouraged and Government shall procure millets and pulses. Credit and crop insurance shall be increased to cover 85% of small and marginal farmers.

Investments shall be raised in to Agro processing industry. Farmers producers organizations need to be encouraged to benefit farmers from market participation. Policy reform in agriculture is need of the hour. Have strong civil society participation in agricultural policy formulation and to keep communication open with farmers and farming communities are the areas need to be pondered upon.

Our policies should help create sustainable, long-term, rural, non-farm employment options which can aid the rural poor in overcoming barriers to economic prosperity. India's rural development policies should increasingly focus on developing markets, infrastructure and institutions that can help sectors such as livestock and construction growth. While India's post-Independence rural policy has primarily been about driving people away from agriculture and towards cities, we must now incentivise job creation at their doorstep.

General Studies Paper- III

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



5. LOGISTICS PERFORMANCE OF INDIA

Why in News?

India has moved from the 54th position in 2014 to 44th in 2018 in the World Bank's Logistics Performance Index (LPI), logistics costs in India are 13-15 per cent of the product cost, while the global average is six per cent.

Introduction

Logistics is regarded as the backbone of the economy, providing efficient and cost effective flow of goods on which other commercial sectors depend. Logistic industry in India is evolving rapidly, it is the interplay of infrastructure, technology and new types of service providers, which defines whether the logistic industry is able to help its customers reduce their costs in logistic sector and provide effective services. Logistics has been the holding beam for almost every business structure across the world since the rise of the economy. The towering needs of businesses to transport goods and services must be addressed by the logistics sector with best-in-class infrastructure and effective logistics management system.

The economic survey of India for 2017-18 has projected the logistics sector to rise from the current worth of \$160 billion to Rs 215 billion by 2020. Logistics—moving goods and connecting producers with consumers—is a critical part of the modern economy. In India, this sector comprises 14% of gross domestic product (GDP), much higher than in the US or Europe, where it is 8-9%, according to McKinsey research. That matters; High logistics costs hurt Indian competitiveness. In a PPP (Public Private Partnership) model, the government of India efforts to improve India's ranking in World Bank LPI (Logistics Performance Index) from 44 to 15 in the coming years.

Global Logistics Performance

The global logistics landscape displays positive trends, even though disparities remain between the top performers and many developing countries.

In developing countries, the logistics agenda appears even more prominent today than it was in 2007, as interventions expand with changes in demand, changes in industry, and the increasingly central role of sustainability- related concerns. Often motivated by the Logistics Performance Index, national governments and regional groups are promoting reform. And international organizations the Organisation for Economic Co-operation and Development (OECD), the United Nations Conference on Trade and Development, the World Bank, and regional development banks are supporting them.

LPI Report Highlight

- ◆ Over the past several years, high-income countries, most of which are in Europe, occupied the top 10 positions in the LPI rankings. Not surprising, since these countries traditionally have been dominant in the supply chain industry.
- ◆ The composition of the 15 best-performing countries has not significantly changed either. But it is worth highlighting major improvements in the LPI scores of Japan, Denmark, the United Arab Emirates, and New Zealand since 2012.
- ◆ The bottom 10 countries in the ranking are mostly low-income and lower-middle-income countries in Africa or isolated areas.
- ◆ Bottom countries are either fragile economies affected by armed conflict, natural disasters, and political unrest or landlocked

countries naturally challenged by geography or economies of scale in connecting to global supply chains.

- ◆ The overall group composition among the top-performing upper-middle-income economies has changed marginally, with China, Thailand, and South Africa leading the group, and Croatia and Bulgaria improving in their LPI ranking.
- ◆ Among lower middle-income countries, large economies such as India and Indonesia and emerging economies such as Vietnam stand out as top performers. Most either have access to the sea or are located close to major transportation hubs.

What is the Logistics Performance Index?

Based on a worldwide survey of global freight forwarders and express carriers, the Logistics Performance Index (LPI) is a benchmarking tool developed by the World Bank that measures performance along the logistics supply chain within a country. Allowing for comparisons across 167 countries, the index can help countries identify challenges and opportunities and improve their logistics performance. The World Bank conducts the survey every two years. Government and the private sector in many developing countries should improve these areas—or face the large and growing costs of exclusion.

Components of LPI

LPI 2018 ranks countries on six dimensions of trade including customs performance, infrastructure quality, and timeliness of shipments. The data used in the ranking comes from a survey of logistics professionals who are asked questions about the foreign countries in which they operate.

The components analyzed in the International LPI were chosen

based on recent theoretical and empirical research and on the practical experience of logistics professionals involved in international freight forwarding. They are:

- ◆ The efficiency of customs and border management clearance (“Customs”).
- ◆ The quality of trade and transport infrastructure (Infrastructure”).
- ◆ The ease of arranging competitively priced shipments (Ease of arranging shipments”).
- ◆ The competence and quality of logistics services—trucking, forwarding, and customs brokerage (“Quality of logistics services”).
- ◆ The ability to track and trace consignments (“Tracking and tracing”).
- ◆ The frequency with which shipments reach consignees within scheduled or expected delivery times (“Timeliness”).

The LPI uses standard statistical techniques to aggregate the data into a single indicator that can be used for cross-country comparisons.

Logistics Industry in India

Goods are transported predominantly by road and rail in India. Whereas road transport is controlled by private players, rail transport is handled by the central government. With the second largest network in the world, road contributes to 65 per cent of the freight transport. Road is preferred because of its cost effectiveness and flexibility. Rail, on the other hand, is preferred because of containerization facility and ease in transporting ship-containers and wooden crates. Sea is another complementary mode of transport. Ninety five per cent of India’s foreign trade happens through sea. India has a total 13 major ports and 200 notified minor and intermediate ports.

The logistics industry in India is evolving rapidly and it is the interplay

of infrastructure, technology and new types of service providers that will define whether the industry is able to help its customers reduce their logistics costs and provide effective services. Changing government policies on taxation and regulation of service providers are going to play an important role in this process.

Factors Driving Logistics Ecosystem

Since 2016, India has emphasized logistics among its high-priority economic reforms to meet challenges of large country size, congested hubs, and internal barriers to trading good and services.

Implementation of GST: It has been 15 months since the rollout of what is considered one of India’s biggest tax reforms — the Goods and Services Tax (GST). In the Pre-GST era, the Indian logistics sector was struggling to add value to customers, compared to global peers. Indian firms were seen as labour contractors or mere transporters, which denied them the benefits of being a part of the supply chain.

Post GST, there is a marked improvement in the use of technology and digitisation by logistics players. Third-party logistics players can become real ‘differentiators’ as they embrace technology to enhance visibility of load carried, turn-around time, vehicle utilisation, improvement in loading/unloading time by removing congestion at the docks, and the like.

The Goods and Service Tax (GST) framed under the center and state list has paved the path for a better logistics sector. Customers can easily move their shipments with minimal paperwork and faster delivery and customs clearances with the new policy change by the Government.

Apart from this, to foster the growth of logistics sectors many start-ups and established enterprises have entered the market equipped

with the latest technology, quality warehousing, and functional transport facility to provide world-class services in the Indian market. The recent entry of international logistics players has also ensured the boost of the Indian logistics industry. This will be a sight to behold the glorious rising of logistics industry in coming years, especially marking 2020.

Adoption of the e-way bill will also lead to faster and smoother movement of goods with the removal of a large number of state border and national check posts. In addition, once RFID technology is implemented, transporters will not be required to carry physical copies of an e-way bill, which will be synchronized and verified through the device itself. Through faster and more efficient transportation, the logistics industry will see a substantial reduction in fuel and other transportation-related costs as well.

Infrastructure: The recent Indian logistics sector comprises of inbound and outbound segments of the manufacturing and service supply chains. Of late, the logistics infrastructure has gained a lot of attention both from business industry as well as policy makers. Inadequate logistics infrastructure has an effect of creating bottlenecks in the growth of an economy. The logistics management regimen has the capability of overcoming the disadvantages of the infrastructure in the short run while providing cutting edge competitiveness in the long term.

The government is committing a whopping Rs 6 lakh crore towards infrastructure this financial year. More than 50% of this investment will be routed to the creation and upgradation of roads, railways and ports, and forms one of the primary drivers of transformational growth for the logistics sector in India. The large-scale investments are aimed at bringing down the cost of logistics from

a staggering 14.4% of GDP to about a 10% level over next three-four years, which will make the sector competitive.

Technology: The growing market with the help of technology and developing infrastructure have made it possible. Developed countries have strengthened their infrastructure and transport system to their full potential in facilitating seamless logistics services in both domestic and cross-border territories. The globalization at the fastest pace ever has taken industries with a storm and the movement of goods from the origin point to delivery station has been made effectively fast and secure. Whether it is a small courier or a complete cargo, logistics has made it easier for people to transport their products on time. The rise of e-commerce on the global platform in the recent times has made logistics a major player in the world economy.

The Importance of Skill Development for Logistics

National governments and international agencies have traditionally paid more attention to infrastructure and trade facilitation than to fostering quality services and a skilled workforce. Employees are hired by private companies, and their training is largely a private responsibility. But governments play an important role directly by regulating or providing training and indirectly by facilitating private initiatives.

Developing countries need a major expansion of logistics training and skill development initiatives. Public interventions promoting logistics competence include the following:

- ◆ Education and training by public institutions, or financial support to training.
- ◆ Education policy and curricula development.
- ◆ Advocacy, public-private dialogue, and multi-stakeholder collaboration.

- ◆ Regulation of freight and logistics services, including customs brokerage and trucking.
- ◆ Setting and harmonizing competency standards for different jobs.
- ◆ Raising skill levels in state-owned logistics enterprises (typically ports and railways).
- ◆ Investing in human capital as a component of the development of logistics and freight infrastructure.

As part of its country work, the World Bank recently began to offer a comprehensive assessment of skills and competencies at the national level to support logistics improvements. It pinpoints labor skills and constraints in logistics jobs and suggests priorities for intervention to upgrade skills.

Challenges Faced By Logistic Industry in India

Several challenges remain before the Indian logistics sector and its future success will depend on the ability of the industry to overcome these hurdles. Some of these impediments are at the firm level while others are at the policy level.

At the policy level, the issues of infrastructure and integration of the nation's logistics network remain the two most critical areas that require attention. The growth of infrastructure, since 1991, has been quite extensive (covering a wide geographical area) as well as strategic – linking the key industrial, consumption and transshipment centers. The rate of growth of expressway has to increase. Poor road conditions increase the vehicle turnover, pushing the operating cost and reducing efficiency. More importantly, due to non-contiguous development of expressways, truck traffic has to frequently move from the expressway on to old national highways and vice-versa.

- ◆ The challenges faced by the industry today are the lack of integration in transport networks, information technology, and warehousing & distribution facilities.
- ◆ Rules and Regulations differ at different stages, are imposed by regional, national and local authorities.
- ◆ Trained manpower is necessary for both Third party logistics sector as well as the manufacturing and retailing sectors, which is very weak at a practical level, i.e., IT, driving and warehouse as well as at a higher strategic level.
- ◆ Logistics sector requires high manpower and lack of training institutions cause effective outputs
- ◆ Poor management and facilities are the reason for heavy loss, damage and deterioration of stock, mainly in the perishables sector. Proper refrigerated storage and containers and maintenance is must.

At the firm level, the logistics focus will have to move towards reducing cycle times in order to add value to their customers. These are few of the issues one need to take account before the logistics industry can boom significantly in India.

Opportunities in Logistics Industry

The logistics sector in India has today become a key performance of the Indian economy. One of the primary reasons for it is that years of high growth in the Indian economy has resulted in a significant rise in the volume of freight traffic moved. This traffic generated new growth opportunities in all Domains of logistics including transportation, warehousing, freight forwarding, express cargo delivery, container services, shipping services etc.

Job Opportunities: As a result of all the investment-led transformation, the logistics sector in India is expected

to provide employment to 13.9 million people, up from the current 10.9 million, over the next four years (2018-2022), making it the largest job-creator in the infrastructure space.

Conclusion

The growing scope of logistics performance and increasing recognition of its contribution to growth and economic integration call for holistic policies. More and more countries, especially emerging economies, see logistics as a sector of the economy requiring consistent policy making that cuts across traditional logistics

areas. Port infrastructure and linkages have been frankly a sinking ship and initiatives such as Make in India cannot take off without better port infrastructure. Sagarmala, integrated with the development of inland waterways, is expected to reduce cost and time for transporting goods, benefiting industries and export/import trade.

Collaborative efforts by all stakeholders and interested parties would enable the development of a sustainable and thriving logistics sector that not just serves the nation's needs, but also will make India a global hub

for logistics services. If India needs to reap the benefits of the logistics revolution, it has to undertake strategic investment, intervention and initiatives to build this sector and make it the largest infrastructure jobs engine for India. The day of reckoning for logistics is here, and betting big on this sector will surely translate into a large number of jobs for India.

General Studies Paper- III

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

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6. TECHNOLOGY RESHAPING HEALTHCARE SECTOR

Why in News

With the aim of providing a platform for educating and enabling open discourse on the state of tomorrow's healthcare systems, leading health sector management University, IIMMR, concluded the 23rd edition of its flagship annual event, Pradanya 2018, with power-packed debates on breakthrough technologies, transformations, innovations and discoveries and their impact on current and future models of medical service delivery. The theme for this year's event was "Re-imagining Healthcare: Yesterday's Dream, Tomorrow's Reality"

Introduction

Age and disease demographics are changing rapidly across the globe. The number of people above 65 years is expected to double and constitute nearly 17% of the world population by 2050. The chronic disease incidence rate is expected to rise to 57% by 2020. These figures highlight the need to enhance quality and efficiency of care with quick response time to health-related emergencies. In terms

of indices on life expectancy, infant mortality, maternal deaths and quality of outcomes, healthcare sector in India has improved a lot over the last three decades. But we cannot rest on these achievements now, because the pace of change is still scorching, and is fundamentally altering disease patterns, patient risk profiles and their expectations. Information technology and biotechnology are twin engines, with immense potential to transform the mechanics of care delivery, the outcomes we can achieve and, above all, the lives we can touch and save.

Ayushman Bharat is going to cover 500 million people, making it the world's largest public health insurance programme. However, it will only be successful if the Indian government uses technology in every aspect of the project—to scale the provision of health services, monitor treatment and ensure accountability. In this article we will analyse various technologies and their impact and usefulness for an efficient, robust, inclusive and cost effective healthcare delivery system in India.

A brief Background

The one thing that has changed the entire narrative of human lives in the 21st century is technology. From education and entertainment to healthcare, there is hardly any sector that technology has not influenced or even transformed in a positive way. Technical advancements are revolutionizing the healthcare industry all around the globe and our country is not far behind. Today, India is ushering in technological breakthroughs and the growing start-up culture has a lot to do with it. In an ever changing world of technology, the best strategy for a successful business is to innovate or adapt, learn new technologies and evolve. The healthcare industry is full of examples of companies that are front runners of this strategy. Here are some of the technologies that are being incorporated and have the potential of changing the face of Indian healthcare.

Insights into Technologies

Artificial Intelligence (AI)

Healthcare is breaking out of silos, becoming increasingly connected,

but also increasingly complex. While it poses an opportunity for medical professionals to learn more than before, the enormous amount of medical information can overwhelm the decision-making processes. This is where artificial intelligence (AI) systems come in.

AI works on the principle in which data from different sources are fed into a system. With the use of algorithms, programs and systems to simulate human intelligence, AI can analyse big data sets. These data sets can be from clinician's notes, reports from a patient's file, medical research publications, and clinical trial outcomes. In a matter of seconds, it can create an actionable gist of all, for a particular clinician or a group to review.

AI and machine learning use data sets and algorithms to model various scenarios in the drug-discovery process. This modelling is used to arrive at a predictive hypothesis much faster than the traditional trial-and-error method, which results in much shorter time for creating proof of concepts. As patients demand more from their providers, and the volume of available data continues to increase at a staggering rate, artificial intelligence can provide insights into diagnostics, care processes, treatment variability, and patient outcomes.

Some important aspects of computational systems are that they can perform repetitive tasks without feeling bored or fatigued and can analyse billions of data bytes in a matter of seconds. AI systems can bring in better standardisation of processes, and therefore subjectivity in interpreting information will be reduced. There are AI systems already in operation that have demonstrated the ability to identify sight-threatening conditions with equal accuracy to human ophthalmologists. There are those which can scan a human chest X-ray faster than a medical professional

can, and detect a small tumour or an early onset of pneumonia. Some trained neural networks can interpret pathology images of tumours at a success rate of detection upwards of 90%, compared to an expert pathologist.

AI-assisted robotic surgery, where robots are able to analyse pre-op medical data and guide a surgeon's instrument during surgery, ensures patients develop fewer complications than otherwise. In a resource-constrained environment with a low doctor-patient ratio, AI has the potential to deliver remote medicine and create virtual access in an effective manner. This does not mean the doctor will be eliminated, but that it will be an aid for the doctor.

It can also be preventive in nature. "The auto diagnosis tool is an AI-powered tool that runs on actual diagnostic tests results and provides probable risks factors. Additionally, it also suggests users change their lifestyle by recommending diet and exercise plans. Further investigations (if any) and a list of repetitive examinations for regular health tracking and monitoring are also suggested".

Internet of Things (IoT)

One of the more impactful disruptions we are witnessing today is the adoption of technologies now categorised as a part of "Internet of Things". The ability of IoT to be able to track and communicate with devices gives a completely different dimension to the potential application of medical devices.

3D Printing

Three-dimensional (3D) printing has come a long way since its debut 30 years ago and is opening new opportunities in a variety of industries. Riding on the winds of innovation and advancements, 3D printers are set to provide faster prototyping

ideas, inventive problem solving and increased cost efficiency. It has reduced the cost of several medical procedures. Along with that 3D printers have successfully recreated body parts as complex as blood vessels, which proves that this technology has a lot of untapped potential.

It presents pharmacologists with a new level of precision that can help them design pills that house several drugs, all with different release times, providing a potential solution to those who suffer from a range of ailments and need to take large number of pills.

Many medical procedures, especially those of a surgical nature, can be tricky, even for highly skilled surgeons. By providing a replica of organs and body parts, 3D printers give doctors an insight that cannot be replicated by any form of medical diagnostics.

Tele-Medicine

Telemedicine aims to provide healthcare services beyond geographic, time, and social barriers. Usually, these services are targeted towards remote regions where there is a shortage of physicians or specialists. In India, 68% of the population still lives in the rural areas. With one doctor for every 11,000 people, India falls far below the World Health Organisation standards, which specifies one doctor per 1,000 patients. The problem is particularly stark in villages, where access to primary healthcare centres is a major challenge, and where it is difficult to attract qualified doctors. To solve these problems, telemedicine can be a game changer. It's possible for remote eHealth centres to beam MRIs or cardiograms into well-equipped hospitals in cities to be studied by experts. Telemedicine is the use of electronic information to communicate technologies to provide and support healthcare when distance separates the participants.

With the emergence of telemedicine, the best doctors are

being brought together with patients living in the remotest corners of India via technology. Many new startup like, Gramin Health Care (GHC), Narayana Health (NH) etc are working in this domain providing healthcare facilities in unserved areas. Central Government Programme to expand its Telemedicine centre, ISRO's Village Resource Centres (VRCs) programme in association with NGOs/ Trusts and state/ central agencies are steps in the right direction.

Blockchain Technology

It is a technology that creates immutable and distributable data records which are shared peer to peer between networked database systems. The technology records digital events in a way that does not allow for the data to be changed or recognized until it reaches the recipient. That is why the most significant advantage of block chain is the idea that data is theoretically secured and protected from data breach threats.

With an ongoing increase in patient numbers, healthcare providers have to manage more and more health data on a regular basis. As the data volume increases each year, it becomes harder for hospitals and clinics to process and store information. Secure information sharing methods, which allow both healthcare providers and their covered entities to verify the correctness of data, are crucial for ensuring proper medical services. Here Blockchain Technology comes in handy. Besides disintermediation, data integrity and provenance, healthcare providers see transparency (55.2%) as one of the top advantages of using blockchain in their industry. Blockchain in healthcare finds usage in solving issues pertaining to drug traceability, data security in clinical trials, and Patient Data Management.

Biotechnology

Biotechnology is actually an extremely significant emerging field. It has uses in molecular biology,

genomics, cellular and tissue engineering, new drug discovery and delivery techniques, and bio-imaging hold the promise of improving health care by enhancing the diagnostic capabilities and substantially expanding therapeutic options.

Biotechnology, cell biology and genetics are opening up whole new paradigms of understanding of human life and disease, and have made personalised medicine a way of life.

Augmented Reality

Augmented reality is an interactive experience of a real-world environment where the objects that reside in the real-world are "augmented" by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory, and olfactory. From the virtual reality (VR) of 3D-printing, we are now moving towards augmented reality (AR), by which, for example, every piece of node in a malignant melanoma can be completely removed, thereby eliminating the risk of the cancer spreading to any other part of the body.

Automation

Integration of automation in healthcare is one of the biggest shifts we are seeing today. What's exciting is the broad spectrum of automation that is being used. From automating digitization of health records and data mining to complete processes for higher consistency. In addition to this, in-built quality control mechanisms negate possibilities of errors, which is essential in the healthcare industry. Another dimension includes technologies that provide continuous feedback loops linked with automated data mining that are being used for management, optimisation and improved services to patients and healthcare entities. Lastly, automation can also be used to develop innovative products and services to

solve challenges or issues being faced by patients, payers and providers.

Cloud Computing

Cloud computing is a crucial tool for healthcare professionals. The cloud makes it possible for individuals and entities, big and small, to access, manage and optimise information. This in turn allows them to offer the best care to their patients in economical options. To give an example, cloud computing allows doctors to access and compare patient data to be able to give better diagnosis and treatment to their patients.

Concerns / Challenges

However there are some concerns regarding these modern technological interventions in the healthcare.

Electronic health record or the EHR, which is the fundamental unit of digital healthcare. In a fully digital health system, every entity that a patient comes in contact with during the life cycle of her diagnosis and treatment—the physician, the hospital into which she is admitted, the diagnostic clinic that processes her tests, the insurance company, etc—will each generate EHRs pertaining to the same patient. It leads to duplication of efforts as well as increases the healthcare costs. If all these EHRs are optimally coordinated they can be efficiently used across the ecosystem. By adopting the Systemized Nomenclature of Medicine (SNOMED) classification for use in the Indian ecosystem, the Indian government seems to be moving in the right direction. However the implementation at the ground level and particularly in the private sector is still an Achilles heel.

Going forward, India needs to put in place a robust policy framework to regulate, develop and deploy digital health across the continuum of care. On the similar lines, Digital infrastructure needs to be boosted on

priority basis to tackle the growing pace of digitalization in healthcare sector. Challenges of adequate arrangement of Human resources (IT professionals as well as medical professionals) also need to be dealt in priority basis.

Legitimate concern for privacy, security and safety of medical data must be addressed. It should be well hack-proof mechanism implementing the norms of recommended by Justice B N SRIKRISHNA committee. It is important to confirm that the rights with respect to the medical data generated by these various stakeholders will vest with the patient as the data principal.

Health information going public can cause damage to reputation with regard to disease with which social stigmas are attached like mental health, fertility, HIV etc. Adequate awareness generation programmes must be implemented at ground level, so that these type of social stigma can be eradicated.

Also, technologies like CRISPR raise ethical concerns due to fears of designer babies and the gene editing

could have unforeseen and harmful effects elsewhere in the genome.

Way Forward

India's change imperative has become even more pronounced with the launch of the Pradhan Mantri Jan Arogya Yojana Abhiyan, or National Health Protection Mission (NHPM), under the ambit of Ayushman Bharat. This major shift in approach to public health addresses the healthcare needs of over 500 million Indians in the first stage through what is probably the world's largest public health-for-all insurance scheme. The vast scale of the programme requires reimagining an innovative model which will transform healthcare delivery in the country. By leapfrogging through smart adoption of technology and using emerging platforms such as Blockchain, significant improvements are possible in healthcare operations and costs.

We need to achieve a balance between staying at the cutting edge of clinical protocols, technology and innovation and continue to deliver

world-class care, while finding increasingly efficient ways of operating to continuously lower the cost of care and bring it within the reach of those who cannot afford it. This is a difficult balance to achieve, but not impossible. And when accomplished, India would have found an answer that can be an example for the rest of the world to emulate.

With clarity and focus, we can create a blueprint for the legacy we wish to build and set the trajectory for Indian healthcare for the next several decades. The decisions we make today are decisions we make for our children, a future we will create for them. We have it in our hands to shape the winds of change we face today into the aerodynamics that will definitively propel our collective destinies forward.

General Studies Paper- III

Topic: Science and Technology-developments and their applications and effects in everyday life.



7. CLIMATE ENGINEERING: ADDRESSING CLIMATE CHANGE MENACE

Why in News

A stratospheric aerosol injection (SAI) program to cut global warming could be remarkably inexpensive, costing about \$1.75 billion a year over a 15-year period, claims a new study by scientists from the Harvard University. According to researchers, no existing aircraft - even with wide-ranging upgrades in their design - would be able to fulfill the mission. It would require new, purpose-built aircrafts with capabilities to carry substantial payload to high altitudes.

Introduction

Climate change is beginning to touch the life of every person on this planet, whether through heat waves, drought, floods, or the ripple effects of increasingly weird weather. According to the latest report by the Intergovernmental Panel on Climate Change, the ambitions stated by worldwide governments in the Paris accord of 2015 are no longer enough to limit global warming to 1.5C. The reports also highlights the out of proportion consequences of global

warming by comparing the differences between scenario of 2C and 1.5C rise in temperature. Whereas the efforts for mitigation as well as adaptation for this unfolding havoc is negotiated at the global level, other measures for dealing with global warming, in particular climate engineering, can have a major impact in addressing this menace. In this article we will try to explore this uncharted territory which may have the potential of beating back the climate change. Climate engineering, also known as geoengineering, describes a diverse and largely hypothetical

array of technologies and techniques for intentionally manipulating the global climate, in order to moderate or forestall some of the effects of climate change. In recent years discussions of such approaches have grown considerably amongst scientists, policy-makers, and environmental groups engaged in addressing climate change.

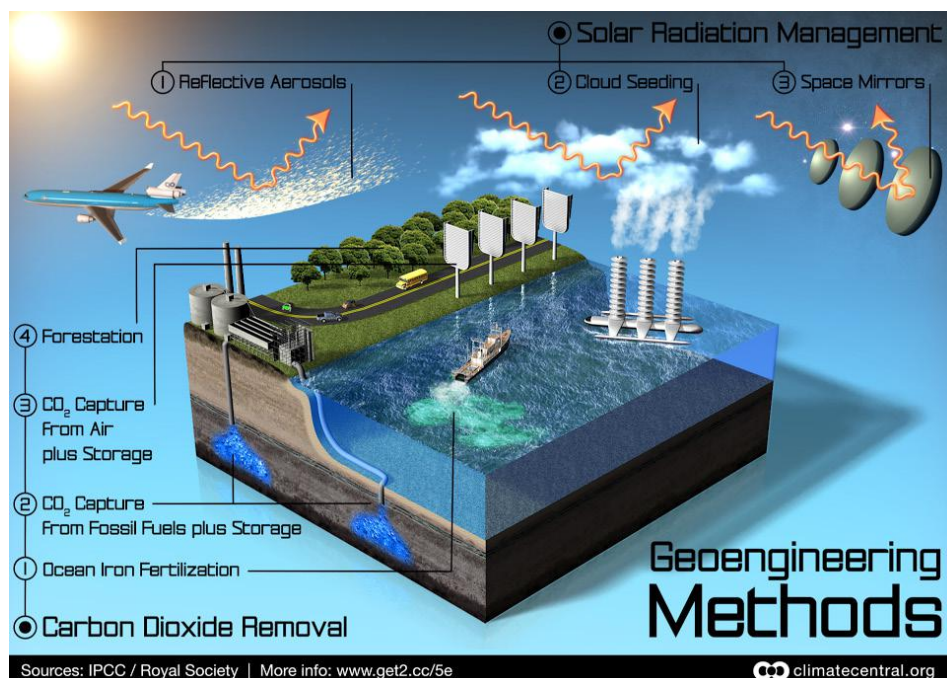
A Dive into Methods of Geoengineering:

A variety of such proposals for battling global warming are already on the table — a few are being tried out and others are being seriously researched. Most climate engineering efforts can be divided into two categories which address, respectively, the management of carbon and the management of sunlight. The first category is directed towards removing greenhouse gases from the atmosphere.

Carbon Dioxide Removal

Carbon Capture and Storage (CCS)

Carbon capture and storage (CCS) (or carbon capture and sequestration or carbon control and sequestration) is the process of capturing waste carbon dioxide (CO₂) from large point sources, such as fossil fuel power plants, transporting it to a storage site, and depositing it where it will not enter the atmosphere, normally an underground geological formation. The aim is to prevent the release of large quantities of CO₂ into the atmosphere (from fossil fuel use in power generation and other industries). It is a potential means of mitigating the contribution of fossil fuel emissions to global warming and ocean acidification. Although CO₂ has been injected into geological formations for several decades for various purposes, including enhanced oil recovery, the long term storage of CO₂ is a relatively new concept. The first commercial example was the Weyburn-Midale Carbon Dioxide Project in 2000. Another example is SaskPower's Boundary Dam.



Carbon dioxide can be captured out of air or fossil fuel power plant flue gas using adsorption (or carbon scrubbing), membrane gas separation, or adsorption technologies. A 2005 industry report suggests that with successful research, development and deployment (RD&D), sequestered coal-based electricity generation in 2025 may cost less than unsequestered coal-based electricity generation today.

Afforestation

Another method for removing CO₂ from the atmosphere is to increase forest cover as plants will absorb some of the unwanted CO₂. Increased forestation is part of India's strategy for reducing CO₂.

Ocean Iron Fertilization

It can be other resort to capture carbon dioxide. This is the intentional introduction of iron to iron-poor areas of the ocean surface to stimulate phytoplankton production. This is intended to enhance biological productivity and/or accelerate carbon dioxide (CO₂) sequestration from the atmosphere.

It is not clear whether CCS, reforestation and other carbon removal methods can make sufficient impact at

the global level to significantly slow down global warming. But they seem relatively benign at the scale at which they are being considered now and will at least lower CO₂ pollution locally.

Solar Radiation Management (SRM)

More ambitious, but also more worrisome, is the second category of climate engineering: solar radiation management (SRM). Here the plan is to reduce global warming by cutting down the heat absorbed by our planet from the sun. Among the techniques being considered are marine cloud brightening, cirrus cloud manipulation and stratospheric aerosol injection (SAI).

Stratospheric Aerosol Injection (SAI)

SAI, the boldest and also the most risky of climate engineering interventions, involves spraying into the stratosphere fine, light-coloured particles designed to reflect back part of the solar radiation before it reaches and warms the earth. SAI proponents claim that this could bring down the global temperature by as much as 1°C — a substantial amount in the climate change context. The optimal gases for

injection, such as sulphur dioxide (SO₂), can be produced in abundance. Furthermore, just a few airplanes specially redesigned for the purpose may suffice for injecting the required aerosol into the stratosphere. There are also precedents from nature. The 1991 volcanic eruption of Mount Pinatubo in the Philippines injected 20 megatonnes of SO₂ into the stratosphere, cooling the globe significantly for a couple of years.

But SAI also has the potential for disastrous side effects, crossing national boundaries. The Pinatubo volcanic eruption is also said to have reduced precipitation, soil moisture, and river flow in many regions. Injection of sulphur compounds into the stratosphere is likely to increase acid deposition on the ground and also contribute to ozone layer depletion.

Depending on the hemisphere in which these aerosols are released, hurricanes in the North Atlantic would become weaker or stronger. Efforts to engineer lower global temperatures could induce severe drought in northern Africa; cause disruption of monsoons in other regions. Adding aerosols in the northern hemisphere would decrease the frequency of cyclones there, while injecting them in the southern hemisphere would have the opposite effect.

Cirrus Cloud Thinning

The other option proposed in SRM is cirrus cloud thinning. Since the cirrus clouds, which are at a height of 10 km above the Earth's surface, also trap the heat, thinning them could cool down the Earth system. However, this reduces the rate of precipitation to less than the required amount.

Cloud Seeding

Cloud seeding is another type of weather modification that aims to change the amount or type of precipitation that falls from clouds by

dispersing substances into the air that serve as cloud condensation or ice nuclei, which alter the microphysical processes within the cloud. The usual intent is to increase precipitation (rain or snow), but hail and fog suppression are also widely practised in airports where harsh weather conditions are experienced.

Space Mirrors

The use of space mirrors as an anti-global warming measure is a proposed technology for climate change mitigation by deflection of sunlight. It was one of a series of proposals for controlling global warming deflecting 1% of sunlight would restore climatic stability, and that that would require either a single mirror 600,000 square miles (1,600,000 km²) in area or several smaller ones. This idea has been researched for more than ten years but it is so infeasible that it should only be a back-up plan for solving the global warming problem.

Risks, Unknowns and Challenges

For now, the field of climate engineering consists of desk and laboratory studies and small-scale field research on some of the proposed methods. No technologies have been deployed at a scale that impacts the global climate. Yet, the intent behind climate engineering, its geographically large or even global impact, and the complexity and uncertainty of its potential effects upon climate governance – and human society – raise profound questions.

On a basic level, there are technical questions about the costs and feasibility of development and deployment of various technologies, as well as the geophysical processes that they aim to manipulate. Given our imperfect knowledge of both the technologies and the climate system, there are worries about unintended environmental and ecosystem side effects. Even if the technologies

function as intended, they will not “turn back the clock” from a climate influenced by rising greenhouse gas emissions to a previous climate – an engineered climate will be a new and different one.

Climate engineering arises in a highly complex social and political context. Potential for unilateral deployment of swift-acting methods, such as the injection of reflective particles in the atmosphere to screen the sun, raises concerns of reckless pursuit of self-interest by powerful actors.

Others challenges involved are, this may be seen as the postponing of transitioning off fossil fuels to later generations, the unequal capacity between states to research and deploy the technologies, or shifting the effects of what would have been GHG-driven climate change to countries and demographics that will suffer from the changed environmental conditions that result from engineering the climate. The physical impacts of climate engineering – both intended and unintentional – may alter natural surroundings and weather patterns as well as the lives and livelihoods dependent upon them.

One of the strongest fears is that developing climate engineering technologies may siphon resources and momentum away from already flagging efforts to reduce carbon emissions, and that this would disrupt negotiations at the UNFCCC.

At an overarching level, others question how climate engineering alters (or confirms) humanity's relationship to the environment in the Anthropocene, as well as the hubris (or ingenuity) of applying technological solutions to complex issues. The wisdom of climate engineering at a moral and ethical level is contentious among scientists, and will likely continue to be so as discussions of the topic increasingly reach beyond the scientific realm.

Way Forward

The complexity of the issues associated with engineering the climate presents a challenge for shaping even the most basic research and engagements with the public and policy-makers today. It is difficult to predict how the debate on climate engineering will influence – or be influenced by – future developments in technology, the climate system, or the international order.

One simple way to deal with this problem is to just ban further research in these fields. In fact, some climate scientists have already suggested this. But a blanket ban on Climate Engineering would be unwise and difficult to implement. Technology, benign or malevolent, has a way of continuing to advance. Besides, banning all Climate Engineering research will amount to throwing the

baby out with the bathwater. The goal of these alternatives is to mitigate damage done by carbon emissions. If there is some chance of it succeeding safely, it would be unwise to abandon it at this stage. Abandonment would also leave Climate Engineering technologies dangling midway, insufficiently tested or refined. That may nevertheless not deter some desperate climate change afflicted nation from deploying it, leading to disaster.

It is only through continuation of responsible research in climate engineering, done under proper regulatory oversight, that the limitations and risks of such interventions can be fully understood and provide the basis for informed decision-making. That will call for international governance mechanisms for overseeing the research and development and possible deployment

of climate engineering techniques. This will take years to negotiate and set up. Criteria for permissible work will have to be developed, along with expertise for verification of compliance.

Acknowledging that climate engineering intersects with other fields and larger trends in all geographic regions and at all levels of governance suggests that the global community must develop an understanding of the social, environmental, cultural, political and ethical issues involved.

General Studies Paper- III

Topic: Science and Technology-developments and their applications and effects in everyday life.

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



SEVEN SUBJECTIVE QUESTIONS WITH MODEL ANSWERS

Global Nutrition Report- 2018 and India

Q1. Despite several measures taken by government to tackle nutrition, India still holds almost one third global burden of malnourishment. Critically examine various lacunas in nutrition measures and ways to address it.

Hint:

India holds almost a third (31%) of the global burden for stunting, the prevalence of which differs from state to state, according to The Global Nutrition Report, published by World Health Organization (WHO). Global burden of malnutrition “remains unacceptably high and progress unacceptably slow”. Under-nutrition accounts for around 45% of deaths among children under five in low- and middle-income countries.

Government is implementing several schemes and programs under the Umbrella Integrated Child Development Services Scheme as direct targeted interventions to address the problem of malnutrition in the country. POSHAN Abhiyaan (National Nutrition Mission) is a flagship programme of the Ministry of Women and Child Development (MWCD), Government of India, which ensures convergence with various programmes. The National Nutrition Mission targets to reduce the level of stunting, under-nutrition, anemia and low birth weight babies.

Other initiatives includes, three existing programmes, designed to reach populations most at risk, namely, the Integrated Child Development Services (ICDS), with its network of 1.4 million Anganwadi Centres, reaching almost 100 million beneficiaries who include pregnant and nursing mothers and children up to 6 years; mid-day meals (MDM) that reach almost 120 million children in schools; and the Public Distribution System (PDS) that reaches over 800 million people under the National Food Security Act.

Both the National Nutrition Strategy and the NNM have recognised the criticality of working collaboratively across Ministries; yet both are silent on the constructive role that the private sector, development agencies and civil society can and must play in realising these ambitious goals. Altering the fundamentals of poor nutrition requires multiple and sustained interventions over a period of time

— increased availability and accessibility of nutritious food, potable water, hygiene and sanitation, primary health care, etc. To simplify a complex issue, the challenge for India is to simultaneously address insufficient and poor diets, inadequate hygiene and sanitation and better management of disease and infections.

Success in this domain will be driven by coordinated action on multiple fronts, but there are at least three urgent priorities. One, to adequately re-engineer the ICDS, MDM and PDS for greater effectiveness. This is an ideal initiative for public-private partnerships as the strength of good private sector companies is in creating and designing frameworks, structures, processes and metrics for action, implementation and tracking.

Poor nutrition will fracture the dreams and aspirations of India to become a global player in manufacturing and other industries. Article 47 of the Constitution mentions the “duty of the state to raise the level of nutrition and the standard of living and to improve public health. The state shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties. The National Nutrition Strategy (NNS) and the Poshan Abhiyaan has set very ambitious targets. For purposeful action, it is imperative to have common goals and metrics for improving nutrition, which can then be disaggregated by year, State, district, etc., into a nutrition dashboard, with metrics that are clear and measurable and a real-time tracking mechanism, much like we track economic data.

Need For Restructuring Minimum Wages

Q2. What is Minimum Wage? Discuss why workers feeling the relentless squeeze of inflation as wages virtually stagnated. They had been fighting a battle with the government for increasing wages, with the government refusing to accede.

Hint.

As per the Indian Constitution, 'Minimum Wage' has been defined as the level of income for skilled and unskilled workers which ensures a sustaining standard of living while also providing for some measure of comfort. A minimum

wage not just supports the bare level of employment, but also seeks for viable continuous improvement. It aims at preventing exploitation of labour.

At present, domestic workers often face very low wages, excessively long hours, have no guaranteed weekly day of rest and at times are vulnerable to physical, mental and sexual abuse or restrictions on freedom of movement. Exploitation of domestic workers can partly be attributed to gaps in national labour and employment legislation, and often reflects discrimination along the lines of sex, race and caste. Wages for the domestic workers are determined by factors such as tasks performed, hours of work, their social status, skills (or the lack of it), the need for flexibility and other labour market conditions. There are on-going debates over the norms for setting wages.

In India, the Minimum Wages Act, 1948 provides for fixation and enforcement of minimum wages in respect of scheduled employments. The Act aims to prevent sweating or exploitation of labour in the unorganized/informal sector. The Act also requires the appropriate government (both at Centre and States) to fix minimum rates of wages in respect of employments specified in the schedule and also review and revise the same at intervals not exceeding five years.

The International Labour Organisation's Global Wage Report has put into sharp relief one of the biggest drags on global economic momentum: slowing wage growth. Global wage growth in 2017 was not only lower than in 2016, but fell to its lowest growth rate since 2008, remaining far below the levels obtaining before the global financial crisis.

Indian economy, in its elements, is a typical example of double-crossing. While the organised sector is excessively regulated by a litany of regulations and labour law, the unorganised sector is in the abyss of development. The unorganised sector which accounts for more than 50% of the employable population is abused by the wealthy and aristocratic employers. What worker community need is a well-balanced, sophisticated mechanism that is instrumental in regulating the wages and employment of workers in the unorganised sector.

Qatar's Departure From OPEC and its implications

Q3. Assess the implications of Qatar quitting OPEC group for India. Also discuss the challenges before India's energy security and the measures that can be taken to address it.

Hint:

Qatar announced that the country will withdraw from the Organization of the Petroleum Exporting Countries

(OPEC) in January 2019. OPEC, a cartel of 15 countries that produce about 45% of the world's oil and contain over 80% of its "proven" reserves. It was founded in 1960 by Saudi Arabia, Iraq, Iran, Kuwait, and Venezuela. Qatar has long showed an independent mind in foreign policy that does not always align with the priorities of its regional Arab neighbours. This includes having a close economic and diplomatic relationship with Shia Iran, Sunni Saudi's great regional rival. What defines Doha's energy sector is not its oil production, but its capacity and global presence in the natural gas sector. Qatar also shares the world's largest known natural gas field, the 'North Field' with Iran.

From India's perspective, its position as the world's top LNG exporter (annual production of 77 million tonnes per year) and an influential player in the global LNG market is more pertinent. Qatar is India's major LNG supplier and a major Foreign Portfolio Investor (FPI) in Indian equities markets. Once Qatar pulls itself out of the OPEC, it will have freedom to decide and fix the prices of LNG without any pressure of the Gulf nations. This would directly benefit India.

Energy is integral for an individual and collective progress of the society. It has become a strategic commodity considering the implications it has on sustained growth of economy and human development. Energy is pivotal for given objectives, and such ambitious target achievement will push energy consumption many folds. Unfortunately, India is energy starved in terms of availability per unit and development of other sources of at present.

Apart from tackling these challenges associated with conventional energy sources, particularly oil, and to meet the increasing gap between the energy demand and supply, we need to look beyond and make a progressive shift towards renewable energy. Renewables have enormous potential to meet the growing energy requirements of the increasing population, while offering sustainable solutions to the global threats of climate change. Simultaneously, development of new partnerships like International Solar Alliance, deploying new technology to harness the renewable better like Off-shore wind farms will help to secure its energy interest.

Quest for Farmers Prosperity

Q4. Explore the reasons behind deepening distress among farming community. What are the areas need to be focused upon to address the crisis?

Hint:

In a country where half the population of 1.3 billion depends on agriculture, low farm profits have long been a challenge and prompted promises by Prime Minister Narendra Modi to double rural incomes by 2022. Low prices

for crops are not the only problem: increasingly erratic weather patterns pose a new challenge in a country where nearly half the farmers lack access to irrigation. The existence of a large number of small and marginal farmers, close to 126 million according to the survey, means it is challenging for the government's extension arms to reach them with new technology and farm support schemes.

The government has sought to double farmer income by raising minimum support prices, but such initiatives would apply directly only to 48% of rural India, with non-agricultural households being left behind. Perhaps we need to look at alternative sources of income. The conversation on raising farmer income needs to embrace non-farm diversification, an important pathway for empowering landless labourers and marginal farmers, as development economist Daniel Coppard recommended in a 2001 report.

Diversification, away from marginal farming, will help to overcome land constraint to income growth, while allowing farmers to cope with exogenous shocks through additional income. In some cases, it even allows them to reinvest in productivity enhancing agricultural technologies. Within this, there are three key sectors, where appropriate reforms can lead to significant income support for marginal farmers.

The livestock sector can offer significant opportunities for bolstering non-farm income. Government initiative like National Livestock Mission, Rashtriya Gokul mission, Dairy Entrepreneurship Development Scheme, National Programme for Bovine Breeding and Dairy Development, Fodder development scheme etc can go a long way, provided implemented properly.

We should also embrace the fact that agricultural labourers routinely seek construction-related daily wage labour to bolster their income. Improving the conditions of migrant workers in the construction sector requires a multi-pronged approach. Micro and small scale enterprises have existed in rural India since ages in the form of traditional skills. Contributing more than 52 per cent of the GDP and making available more than 75 per cent of all labour force in India, the rural sector is best poised for a rapid expansion in the small and medium industry arena.

Various government's initiatives such as Entrepreneurship Development Institution Scheme; Rajiv Gandhi Udyami Mitra Yojana (RGUMY); Performance and Credit Rating Scheme (implemented through NSIC) are steps in the right direction. Businesses around farming, including processing, packaging, transportation, distribution, marketing and financial services, has lot of potential to create jobs for young people, especially those in rural areas.

Strengthen agricultural insurance, reforming agricultural marketing and introduction of model contract farming act are some of the step need to be taken immediately. Our policies should help create sustainable, long-term, rural, non-farm employment options which can aid the rural poor in overcoming barriers to economic prosperity.

Logistics Performance of India

Q5. What is the Logistics Performance Index? Explain why Logistics is regarded as the backbone of the economy. Discuss Challenges Faced By Logistic Industry in India.

Hint:

Based on a worldwide survey of global freight forwarders and express carriers, the Logistics Performance Index (LPI) is a benchmarking tool developed by the World Bank that measures performance along the logistics supply chain within a country. LPI Based on six dimensions of trade including customs performance, infrastructure quality, and timeliness of shipments.

Logistics is regarded as the backbone of the economy, providing efficient and cost effective flow of goods on which other commercial sectors depend. Logistic industry in India is evolving rapidly, it is the interplay of infrastructure, technology and new types of service providers, which defines whether the logistic industry is able to help its customers reduce their costs in logistic sector and provide effective services. Logistics has been the holding beam for almost every business structure across the world since the rise of the economy. The towering needs of businesses to transport goods and services must be addressed by the logistics sector with best-in-class infrastructure and effective logistics management system.

Several challenges remain before the Indian logistics sector and its future success will depend on the ability of the industry to overcome these hurdles. Some of these impediments are at the firm level while others are at the policy level. At the policy level, the issues of infrastructure and integration of the nation's logistics network remain the two most critical areas that require attention. At the firm level, the logistics focus will have to move towards reducing cycle times in order to add value to their customers. These are few of the issues one need to take account before the logistics industry can boom significantly in India.

- ◆ The challenges faced by the industry today are the lack of integration in transport networks, information technology, and warehousing & distribution facilities.
- ◆ Rules and Regulations differ at different stages, are imposed by regional, national and local authorities.

- ◆ Trained manpower is necessary for both Third party logistics sector as well as the manufacturing and retailing sectors, which is very weak at a practical level, i.e., IT, driving and warehouse as well as at a higher strategic level.
- ◆ Logistics sector requires high manpower and lack of training institutions cause effective outputs
- ◆ Poor management and facilities are the reason for heavy loss, damage and deterioration of stock, mainly in the perishables sector. Proper refrigerated storage and containers and maintenance is must.

The logistics sector in India has today become a key performance of the Indian economy. One of the primary reasons for it is that years of high growth in the Indian economy has resulted in a significant rise in the volume of freight traffic moved. Changing government policies on taxation and regulation of service providers will also play an important role in this process.

The logistics industry in India is expected to grow rapidly under the Goods and Services Tax (GST), largely thanks to the reduced checkpoints, warehouse consolidation, and automated technology resulting from the implementation of the e-way bill, which saves transporters both time and money.

Collaborative efforts by all stakeholders and interested parties would enable the development of a sustainable and thriving logistics sector that not just serves the nation's needs, but also will make India a global hub for logistics services. If India needs to reap the benefits of the logistics revolution, it has to undertake strategic investment, intervention and initiatives to build this sector and make it the largest infrastructure jobs engine for India.

Technology Reshaping Healthcare Sector

Q6. Examine the role of modern technologies in overhauling the health sector in India. Also discuss the various concerns related to it.

Hint:

Age and disease demographics are changing rapidly across the globe. The number of people above 65 years is expected to double and constitute nearly 17% of the world population by 2050. In terms of indices on life expectancy, infant mortality, maternal deaths and quality of outcomes, healthcare sector in India has improved a lot over the last three decades.

The one thing that has changed the entire narrative of human lives in the 21st century is technology. From education and entertainment to healthcare, there is hardly

any sector that technology has not influenced or even transformed in a positive way. Technical advancements are revolutionizing the healthcare industry all around the globe and our country is not far behind.

Technologies that are being incorporated and have the potential of changing the face of Indian healthcare. Healthcare is breaking out of silos, becoming increasingly connected, but also increasingly complex. While it poses an opportunity for medical professionals to learn more than before, the enormous amount of medical information can overwhelm the decision-making processes. Biotechnology, cell biology and genetics are opening up whole new paradigms of understanding of human life and disease, and have made personalised medicine a way of life.

India needs to put in place a robust policy framework to regulate, develop and deploy digital health across the continuum of care. On the similar lines, Digital infrastructure needs to be boosted on priority basis to tackle the growing pace of digitalization in healthcare sector. Challenges of adequate arrangement of Human resources (IT professionals as well as medical professionals) also need to be dealt in priority basis. Legitimate concern for privacy, security and safety of medical data must be addressed. It should be well hack-proof mechanism implementing the norms of recommended by Justice B N SRIKRISHNA committee. It is important to confirm that the rights with respect to the medical data generated by these various stakeholders will vest with the patient as the data principal.

India's change imperative has become even more pronounced with the launch of the PradhanMantri Jan ArogyaYojanaAbhiyan, or National Health Protection Mission (NHPM), under the ambit of Ayushman Bharat. This major shift in approach to public health addresses the healthcare needs of over 500 million Indians in the first stage through what is probably the world's largest public health-for-all insurance scheme. With clarity and focus, we can create a blueprint for the legacy we wish to build and set the trajectory for Indian healthcare for the next several decades. The decisions we make today are decisions we make for our children, a future we will create for them.

Climate Engineering: Addressing Climate Change Menace

Q7. What is geoengineering? Describing its various methods also discuss risks involved in adapting it as an alternative for curbing the menace of climate change.

Hint:

Climate engineering, also known as geoengineering, describes a diverse and largely hypothetical array of

technologies and techniques for intentionally manipulating the global climate, in order to moderate or forestall some of the effects of climate change.

A number of geoengineering strategies, or ways in which the environment might be manipulated to offset global warming, have emerged, though there is not yet an agreed upon definition of which methods should be categorized as geoengineering. One involves deflecting a small amount of the sun's light and heat away from the planet to lower global temperatures; this could include the use of reflective aerosols or mirrors high in the atmosphere, or may require the deliberate formation of clouds. A second general method for cooling the planet involves removing carbon dioxide (CO₂) from the atmosphere, either via sequestration or CO₂ capture, or possibly through ocean iron fertilization to promote the growth of CO₂-consuming algae.

These different geoengineering methods are at various levels of technological development, have very different costs/benefits, and are not expected to work equally efficiently. Currently, the only methods that are really considered ready or near-ready for deployment are forestation, and capture from fossil fuels combined with underground storage. For all the other methods there is much more uncertainty and/or much higher projected costs.

Good geoengineering motivates the bus driver to take his foot off the gas with the confidence that he can stop in time. It would be a "technological fix," which means that it

1) connects the problem (too much carbon dioxide in the air) to the solution; 2) creates measurable and unambiguous outcomes (for instance, we can measure the amount of carbon dioxide that the technology removes from the air, and we know how much CO₂ needs to be removed to offset emissions); and 3) allows for future research and development that will lead to significant cost reductions.

Bad geoengineering might seem more attractive once the bus is rolling and accelerating downhill. It is a quick and (usually) cheap fix and allows any individual actor, be it a country or a rogue billionaire, to operate independently. It also doesn't really solve the problem but rather tries to treat the symptom. For instance, solar geoengineering seeks to reduce the amount of sunlight that warms the Earth at the surface, troposphere, upper atmosphere, or even space level. The planet might cool, but this would require the continued treatment; it would be difficult to stop once started. Meanwhile, people would continue to freely dump CO₂ into the atmosphere.

The complexity of the issues associated with engineering the climate presents a challenge for shaping even the most basic research and engagements with the public and policy-makers today. It is difficult to predict how the debate on climate engineering will influence – or be influenced by – future developments in technology, the climate system, or the international order.



SEVEN IMPORTANT NATIONAL & INTERNATIONAL NEWS

NATIONAL

1. Bt-cotton has failed in India : M.S. Swaminathan

A research paper 'Modern Technologies for Sustainable Food and Nutrition Security' co-authored by leading agriculture scientist M.S. Swaminathan, which describes Bt cotton as a 'failure'. The article is a review of crop development in India and transgenic crops — particularly Bt cotton, the stalled Bt-brinjal as well as DMH-11, a transgenic mustard hybrid. The latter two have been cleared by scientific regulators but not by the Centre.

Key Points

Genetically engineered (GE) Bt cotton has failed in India. It has failed as a sustainable agriculture technology and has, therefore, also failed to provide

livelihood security for cotton farmers who are mainly resource-poor, small and marginal farmers.

The piece also raises questions on the genetic engineering technology itself on the grounds that it raises the cost of sowing. Also, the insertion of foreign genes (in the plant) could lead to "molecular and cellular events not precisely understood."

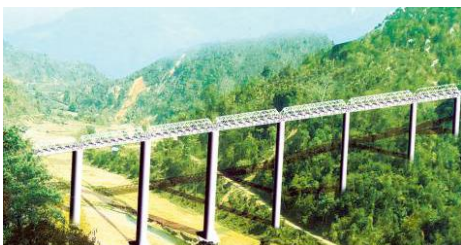
M.S Swaminathan Suggest that the government should only use genetic engineering as a last resort. Genetic engineering technology is supplementary and must be need based. Only in very rare circumstance (less than 1%) may there arise a need for the use of this technology.

About Genetically Modified Crops

Genetically modified (GM) Crop are derived from organisms whose genetic material (DNA) has been modified in a way that does not occur naturally, e.g. through the introduction of a gene from a different organism. Most existing genetically modified crops have been developed to improve yield, through the introduction of resistance to plant diseases or of increased tolerance of herbicides. Currently, Available GM crop are mostly from plants, but in the future foods derived from GM microorganisms or GM animals are likely to be introduced on the market.

2. Indian Railways is Building World's Tallest Girder Bridge in Manipur

The Northeast Frontier Railway (NFR) is constructing the tallest railway girder bridge of the world, in Manipur across the valley of the river Ijai near Noney at 141 metres surpassing the existing record of 139 metre Mala-Rijeka viaduct, at Montenegro in Europe.



- ◆ The bridge is a part of the 111-km long Jiribam-Tupul-Imphal new broad gauge line project in Manipur. The total length of the bridge will be almost 703 metre. There are total 45 tunnels in the project the longest tunnel being 10.280 km long, which will be the longest railway tunnel in the Northeast.
- ◆ The bridge will also help in crucial freight movement. According to Indian Railways, the bridge is designed to carry up to 25 ton axle-load freight trains as well.

- ◆ The Jiribam-Tupul-Imphal railway line cut across the lower Himalayan ranges necessitating series of tunnels through the hills and tall bridges across the deep valleys. The line will connect Manipur's state capital Imphal to Jiribam which is on the western-most boundary of the state. Jiribam is an area that adjoins the Cachar district of Assam. As of now Manipur's capital Imphal has no railway connectivity.

3. Shahpurkandi Dam Project on River Ravi

The Union Cabinet has given its nod to the implementation of Shahpurkandi Dam project in Punjab on the river Ravi in an attempt to minimise wastage of water of the river, which currently flows downstream to Pakistan. And, utilise the water in Punjab and Jammu and Kashmir.

It will create an additional irrigation potential of 5,000 hectares in Punjab and 32,173 hectares in Jammu and Kashmir. Moreover, Punjab will be able to generate 206 MW of hydropower.

- ◆ The project will be implemented by the Punjab government and the Centre will provide financial assistance of over Rs 485 crore (for the irrigation component) to the state over five years from 2018-19.

- ◆ The funding for the central assistance component will reportedly be made through NABARD under existing system for funding of 99 Pradhan Mantri Krishi Sinchayee Yojana - Accelerated Irrigation Benefit Programme projects under the Long Term Irrigation Fund.

- ◆ The dam's construction is expected to generate 6.2 lakh man-days employment for unskilled workers, 6.2 lakh man-days employment for semi-skilled and 1.67 lakh man-days employment for skilled workers.

As per the Indus Waters Treaty - which was signed between India and Pakistan in 1960 - India got the full rights for utilisation of the waters of

three rivers, Ravi, Beas and Satluj. However, at present, some water of Ravi is going waste through the Madhopur Headworks, which the project intends to minimise.

Background

The construction of the dam was initially approved by the Planning Commission during November 2001 but work could not progress much, initially due to the Punjab government's fund paucity - although the central assistance of Rs 26 crore was released during period 2009-11 - followed by a dispute between Punjab and J&K. A series of meetings held bilaterally as well as at the Centre-level finally paved the way for an agreement between the two states in early September.

4. National Mission on Interdisciplinary Cyber-Physical Systems

The government of India has approved the launching of National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS). It will be implemented by Department of Science & Technology at a total outlay of Rs. 3660 crore for a period of five years.

The Mission aims at establishment of 15 numbers of Technology Innovation Hubs (TIH), six numbers of Application Innovation Hubs (AIH) and four numbers of Technology Translation Research Parks (TTRP).

The Mission will feed the Central Ministries/ Departments and State Govts and also the Industry to effectively use the ICPS technologies in their projects and schemes for the benefit of the society.

The Mission addresses the ever increasing technological requirements of the society and takes into account

the international trends and road maps of leading countries for the next generation technologies. The mission implementation would develop and bring:

- ◆ Cyber Physical Systems (CPS) and associated technologies within reach in the country.
- ◆ Adoption of CPS technologies to address India specific National / Regional issues.
- ◆ Produce Next Generation skilled manpower in CPS.
- ◆ Catalyze translational research.
- ◆ Accelerate entrepreneurship and start-up ecosystem development in CPS.
- ◆ Give impetus to advanced research in CPS, Technology development and higher education in Science, Technology and Engineering disciplines.

- ◆ And place India at par with other advanced countries and derive several direct and indirect benefits.

Impact

The proposed Mission would act as an engine of growth that would benefit national initiatives in health, education, energy, environment, agriculture, strategic cum security, and industrial sectors, Industry 4.0, SMART Cities, Sustainable Development Goals (SDGs) etc. CPS is an integrated system of upcoming technology, which in turn is being taken up on priority basis by countries in the race for development. CPS will indeed bring a paradigm shift in entire skill sets requirement. The job opportunities will be enhanced through the Mission by imparting advanced skills and generating skilled manpower as per the requirement of the industry/ society.

5. Gangotri and Yamunotri included under PRASAD Scheme

The government has included Gangotri and Yamunotri in Uttarakhand, Amarkantak in Madhya Pradesh and Parasnath in Jharkhand under a central scheme, Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive (PRASAD) to develop pilgrimage and heritage destinations in the country. With the new additions, the number of sites under the PRASAD scheme has now become 41 in 25 states.



The scheme aimed at infrastructure development such as entry points (road, rail and water transport), last mile connectivity, basic tourism facilities like information/ interpretation centers, ATM/ money exchange, eco-friendly modes of transport, lighting and illumination with renewable sources of energy, parking, drinking water, toilets, cloak room, waiting rooms, first aid centers, craft bazars /haats/ souvenir shops/ cafeteria, rain shelters, telecom facilities, internet connectivity etc.

About PRASAD

The 'National Mission on Pilgrimage Rejuvenation and Spiritual, Augmentation Drive' (PRASAD) had been launched by the ministry of

tourism in the year 2014-15 with the objective of holistic development of identified pilgrimage and heritage destinations. After discontinuation of HRIDAY scheme of the ministry of housing and urban development and for inclusion of projects for development of heritage destinations in PRASAD Scheme, the scheme guidelines have been modified and the nomenclature of the of the scheme has also been changed from PRASAD to "National Mission on Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive in October 2017.

6. Agriculture Export Policy - 2018

The Union Cabinet has approved the Agriculture Export Policy, 2018. The government has come out with a policy to double farmers' income by 2022.

Exports of agricultural products would play a pivotal role in achieving this goal. In order to provide an impetus to agricultural exports, the government has come out with a comprehensive "Agriculture Export Policy" aimed at doubling the agricultural exports and integrating Indian farmers and agricultural products with the global value chains.



Objectives

- ◆ To double agricultural exports from present ~US\$ 30+ Billion to ~US\$ 60+ Billion by 2022 and reach US\$ 100 Billion in the next few years thereafter, with a stable trade policy regime.
- ◆ To diversify our export basket, destinations and boost high value and value added agricultural exports including focus on perishables.
- ◆ To promote novel, indigenous, organic, ethnic, traditional and non-traditional Agri products exports.
 - ◆ To provide an institutional mechanism for pursuing market access, tackling barriers and deal with sanitary and phyto-sanitary issues.
 - ◆ To strive to double India's share in world agri exports by integrating with global value chain at the earliest.

- ◆ Enable farmers to get benefit of export opportunities in overseas market.

Elements of Agriculture Export Policy:

- ◆ The recommendations in the Agriculture Export Policy have been organised in two categories – Strategic and Operational. Strategic category include, policy measures, infrastructure and logistics support, holistic approach to boost exports, greater involvement of state governments in agri exports, focus on clusters, promoting value-added exports and marketing and promotion of 'Brand India'.
- ◆ Operational category include attract private investments into production and processing, establishment of strong quality regimen, research & development and miscellaneous.

7. Floating Solar Plant in Uttar Pradesh

India will soon have its first large-scale floating solar power plant, with the Shapoorji Pallonji Group (SPG) being awarded the first block of 150 MW of such projects on the Rihand Dam, which is located along the Madhya Pradesh-Uttar Pradesh border. The Rihand Dam is India's largest reservoir by volume and the country's largest artificial lake.

Floating solar makes intuitive sense in geographies with high land costs



and poor availability. For instance, the water surface leasing component in this auction amounts to 5 paise per kWh generated, to be paid directly to Uttar Pradesh JalVidyuth Nigam Ltd (UPJVNL), the dam's operator. The largest floating solar plant to date is a 2MW one in Vishakhapatnam. Another is a 500-kWh plant built by the Kerala State Electricity Board at the BanasuraSagar Dam.

The global floating solar market is driven by Asian countries, with China and Japan being home to bulk of the existing operational capacity of 259 MW, according to Scandanavia-based Multiconsult, an engineering consulting firm.

Challenges

In India, floating solar is likely to face challenges scaling up to the level of ground-mounted plants. For one, it is clearly more expensive. The tariff for large scale solar around the country is well under Rs 3 per kWh. The higher tariffs in UP is partly due to higher land costs – there isn't a lot of waste land available for the taking in the highly fertile, populated state.

Despite being land neutral, the cost of the floating systems including anchoring, installation, maintenance and transmission renders the overall cost of the floating solar systems are much higher than the land based systems at this initial stage of development.

INTERNATIONAL

1. Global Carbon Emissions: All-time High

According to researchers at the University of East Anglia (UEA) and the Global Carbon Project, global carbon emissions are set to hit an all-time high of 37.1 billion tonnes of CO₂ in 2018.

Key Points

- ◆ India, the third-highest contributor, is projected to see emissions rise by 6.3% from 2017. The 2.7% projected global rise in 2018 has been driven by appreciable growth in coal use for the second year in a row, and sustained growth in oil and gas use.
- ◆ CO₂ emissions have now risen for a second year, after three years of little to no growth from 2014 to 2016. The rise in 2017 was 1.6%.
- ◆ The 10 biggest emitters in 2018 are China, U.S., India, Russia, Japan, Germany, Iran, Saudi Arabia, South

Korea, and Canada. The EU as a region of countries ranks third. China's emissions accounted for 27% of the global total, having grown an estimated 4.7% in 2018 and reaching a new all-time high.

- ◆ Emissions in the U.S., which has withdrawn from its commitment to the Paris Agreement, account for 15% of the global total, and look set to have grown about 2.5% in 2018 after several years of decline.
- ◆ Limiting global warming to the 2015 Paris Agreement goal of keeping the global temperature increase this century to well below 2°C, would need carbon dioxide emissions to decline by 50% by 2030 and reach net zero by about 2050.
- ◆ Though coal use contributed to the rise in 2018 from last year, it

still remains below its historical high in 2013 but may exceed that if current growth continues.

About Global Carbon Project

The Global Carbon Project was established in 2001 by a shared partnership between the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environmental Change (IHDP), the World Climate Research Programme (WCRP) and Diversitas. This partnership constituted the Earth Systems Science Partnership (ESSP) which subsequently evolved into Future Earth. The Global Carbon Project is a Global Research Project of Future Earth and a research partner of the World Climate Research Programme.

2. World Bank to Invest \$200bn to Combat Climate Change

The World Bank Group has announced a major new set of climate targets for 2021-2025, doubling its current 5-year investments to around \$200 billion in support for countries to take ambitious climate action. The \$200 billion across the Group is made up of approximately \$100 billion in direct finance from the World Bank (IBRD/IDA), and approximately \$100 billion of combined direct finance from the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA) and private capital mobilized by the World Bank Group.

The new targets build on the World Bank Group's 2016 Climate Change Action Plan. In 2018, the

World Bank Group provided a record-breaking \$20.5 billion in finance for climate action: doubling delivery from the year before the Paris Agreement and meeting its 2020 target two years ahead of schedule.

Developed countries are committed to lifting combined annual public and private spending to USD 100 billion in developing countries by 2020 to fight the impact of climate change — up from 48.5 billion in 2016 and 56.7 billion last year, according to latest OECD data.

Southern hemisphere countries fighting the impact of warming temperatures are nonetheless pushing northern counterparts for firmer commitments.

Significance

The new financing will ensure that adaptation is undertaken in a systematic fashion, and the World Bank will develop a new rating system to track and incentivize global progress. Actions will include supporting higher-quality forecasts, early warning systems and climate information services to better prepare 250 million people in 30 developing countries for climate risks. In addition, the expected investments will build more climate-responsive social protection systems in 40 countries, and finance climate smart agriculture investments in 20 countries.

3. UN Framework to Strengthen Fight Against Terrorism

UN Secretary-General Antonio Guterres has launched UN Global Counter-Terrorism Coordination Compact to combat the scourge of international terrorism and coordinate efforts across the peace and security, humanitarian, human rights and sustainable development sectors. The framework is an agreement between the UN Chief, 36 organizational entities, the International Criminal Police Organisation (INTERPOL) and the World



Customs Organisation. The policies that limit human rights only end up alienating the very communities they aim to protect, which normally have every interest in fighting extremism and as a result, such policies can effectively drive people into the hands of terrorists and undermine prevention efforts. The new framework has been introduced keeping in mind the need to ensure full respect for international human rights standards and rule of law in countering terrorism.

Why?

This year's Global Terrorism Index released by the Institute for Economic and Peace, which indicates that

despite a 27 per cent fall in the number of deaths from acts of terrorism worldwide, the impact of terrorism remains widespread, with 67 countries experiencing deadly attacks. This is the second highest recorded number of countries in the past twenty years.

Terrorist organization like Da'esh and Al Qaida continue to twist religion to serve their ends. At the same time, neo-Nazi and far right groups are also using the Internet as a platform to mobilize support across borders, exploit economic anxieties, radicalize, recruit and carry out attacks.

4. Chang'e-4 Mission

China has launched the first mission to land a robotic craft on the unexplored far side of the Moon. The Chang'e-4 lunar probe mission – named after the 'moon goddess' in Chinese mythology.

The tasks of the Chang'e-4 probe include low-frequency radio astronomical observation, surveying the terrain and landforms, detecting the mineral composition, and measuring the neutron radiation and neutral

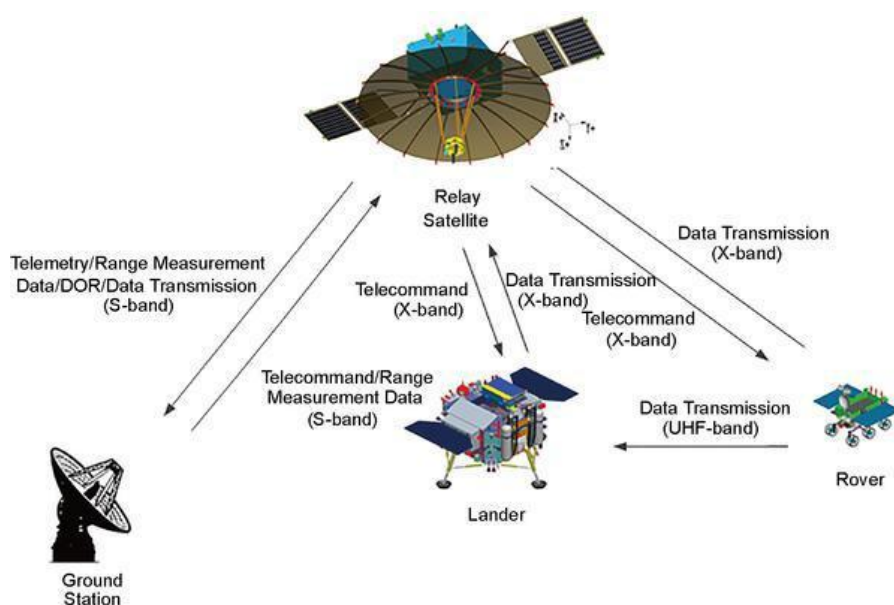
atoms to study the environment on the far side of the moon.

The Chang'e-4 mission consists of a lander and rover with a combined mass of just under four metric tons, carrying cameras and science payloads to analyze the lunar surface geology and subsurface, solar wind interactions and carry out low-frequency radio observations in the unique radio-quiet environment on the far side of

the moon. The launch marks China's renewed ambition for future lunar missions, sure to catapult the country into history books for being the first country to even attempt such a feat. China entered the elite fray of moon-faring nations by putting its Yutu ("Jade Rabbit") rover mission on the Moon in 2013. The mission, known as Chang'e-3, was part of a decades-long effort to study the Moon using a robotic spacecraft. Prior to Chang'e-3, the country had put a spacecraft in lunar orbit and had also crashed a vehicle into the lunar dirt. If China succeeds in that too, the country's space program will be propelled to occupying a leading position in one of the most important areas of lunar exploration.

Far Side of the Moon

The topography of the far side is far more rugged and variable than the near side, which is marked with vast, smooth basaltic seas or mare, which can be seen from Earth with the naked eye. The far side contains few such maria and the Chang'e-4 mission may bring insight into this mystery.



5. Global Climate Risk Index - 2019

Germanwatch has released 14th edition of the Global Climate Risk Index- 2019. The report was prepared to analyse damages caused by the extreme weather events that took place from 1998 to 2017.

According to the index, altogether, more than 5,26,000 people died as a direct result of more than 11,500 extreme weather events; and losses between 1998 and 2017 amounted to around US\$ 3.47 trillion.

Puerto Rico, Sri Lanka and Dominica were at the top of the list of the most affected countries in 2017.

Between 1998 and 2017, Puerto Rico, Honduras and Myanmar were the countries most affected by extreme weather events.

Of the ten most affected countries and territories (1998–2017), eight were developing countries in the low income or lower-middle income country group, one was classified as an upper-middle income country (Dominica) and one an advanced economy generating high income (Puerto Rico).

Storms and their direct implications – precipitation, floods and landslides – were one major cause of damage in 2017. Of the ten most affected countries in 2017, four were hit by tropical cyclones. Recent science has found a clear link between climate change and record-breaking precipitation of 2017's hurricanes. It also suggests that the number of severe tropical cyclones will increase

with every tenth of a degree in global average temperature rise.

Way Forward

The Climate Summit in Katowice should adopt the 'rulebook' needed for the implementation of the Paris Agreement, including the global adaptation goal and adaptation communication guidelines. Further more, COP24 must increase efforts to properly address loss and damage, which appears as a cross-cutting issue referenced throughout various negotiation streams, with significant risk of being omitted from final negotiation text. The risks of future climate-related losses and damages are far too severe to simply function as a negotiation chip. ■

6. Riyadh Declaration

The leaders of the Gulf Cooperation Council (GCC) have adopted the Riyadh Declaration at the end of the 39th session of their Supreme Council. They stressed the importance of the GCC coordination in order to meet the challenges of the region, while ensuring the strength of the GCC and unity among its members.

Key Points

- ◆ The leaders also stressed the importance of the comprehensive implementation of the provisions of the economic agreement between the GCC countries, especially the removal of obstacles to the realization of the common economic market.
- ◆ The Gulf leaders agreed on setting a roadmap that includes the necessary measures to achieve the vision of unity for the council. They agreed on organizing relations between the Gulf and international

community in a way that guarantees more development and comfort for the people.

- ◆ They agreed to remove all obstacles that may hinder their joint efforts and decisions, especially in regards to the implementation of the joint Gulf market and customs union. Complete economic unity is predicted to be achieved by 2025.
- ◆ On the defense level, the gatherers agreed that the appointment of a commander for united military command for the GCC was an important step in completing the joint defense system. They urged stepping up efforts to complete all procedures needed to activate the military command and establish the Gulf academy for strategic and security studies.
- ◆ They stressed their support for the Palestinian cause and unity of the Palestinian people. They expressed their keenness on extending their

support to the people of Yemen and all Arab countries in a way that would ensure their security and stability.

About GCC

It was established in 1981 as a political and economic alliance of six countries in the Arabian Peninsula: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It promotes economic, security, cultural and social cooperation between the six states and holds a summit every year to discuss cooperation and regional affairs.

The GCC comprises six main branches that carry out various tasks, from the preparation of meetings to the implementation of policies. These are Supreme Council, Ministerial Council, Secretariat-General, Consultative Commission, Commission for the Settlement of Disputes and Secretary-General. ■

7. Maldives Re-join Commonwealth

The Maldives has applied to rejoin the Commonwealth, reversing a policy of isolation under autocratic leader Abdulla Yameen. Yameen withdrew the Maldives from the Commonwealth after it mounted pressure on him to protect human rights and ensure the rule of law amid a ferocious crackdown on dissent. Mr. Yameen's government had come under pressure from the Commonwealth over its human rights record and the rule of law.

The bloc, which comprises mostly of former British territories, had warned the nation of possible suspension over concerns about freedom of speech, the arrest of the president's opponents, and judicial independence.

About Commonwealth

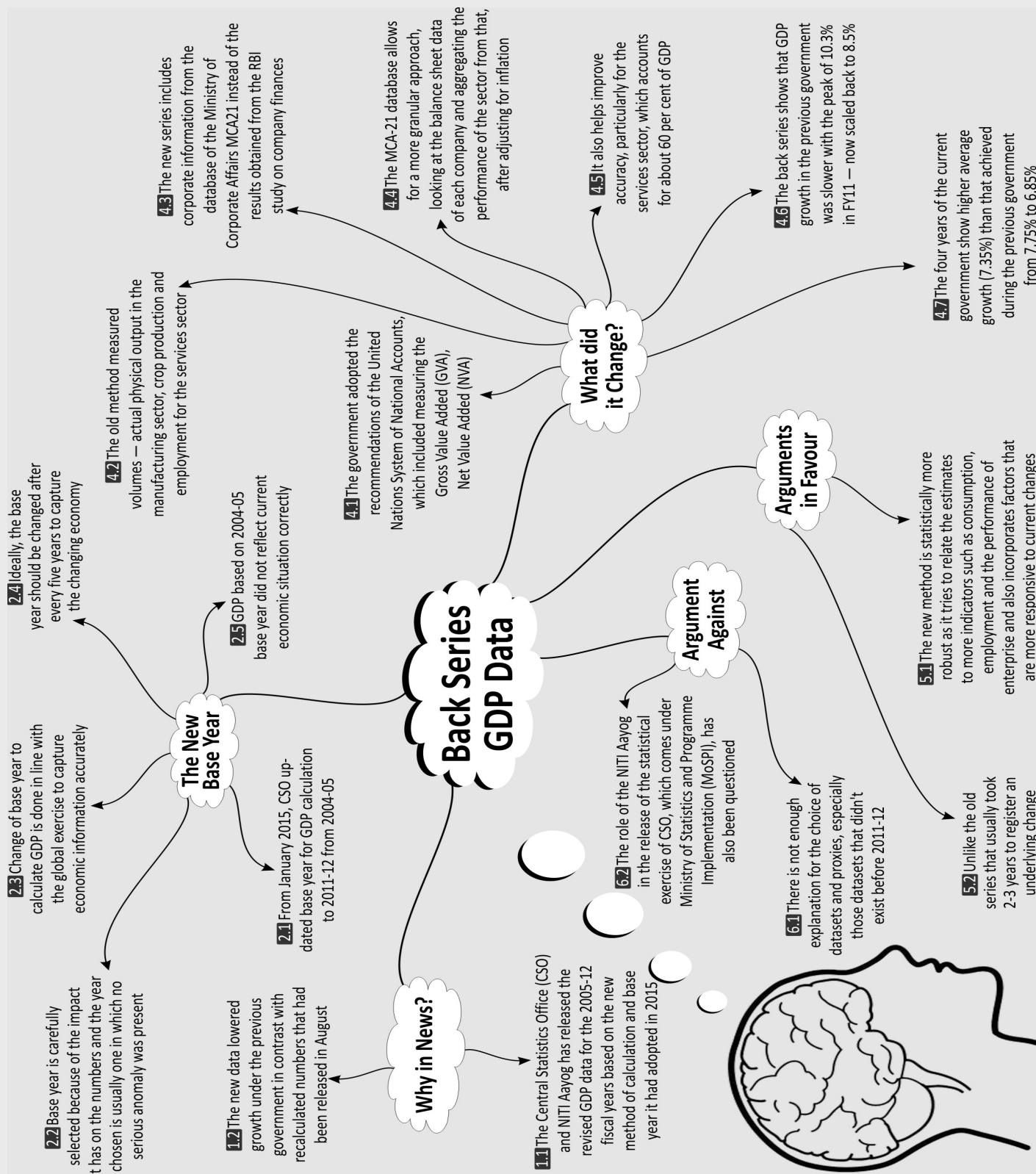
Commonwealth, also called Commonwealth of Nations, formerly (1931–49) British Commonwealth of Nations, a free association of sovereign states comprising the United Kingdom and a number of its former dependencies who have chosen to maintain ties of friendship and practical cooperation and who acknowledge the British monarch as symbolic head of their association. In 1965 the Commonwealth Secretariat was established in London to organize and coordinate Commonwealth activities. The member states of the commonwealth are not legally liable or bound to each other. They are rather

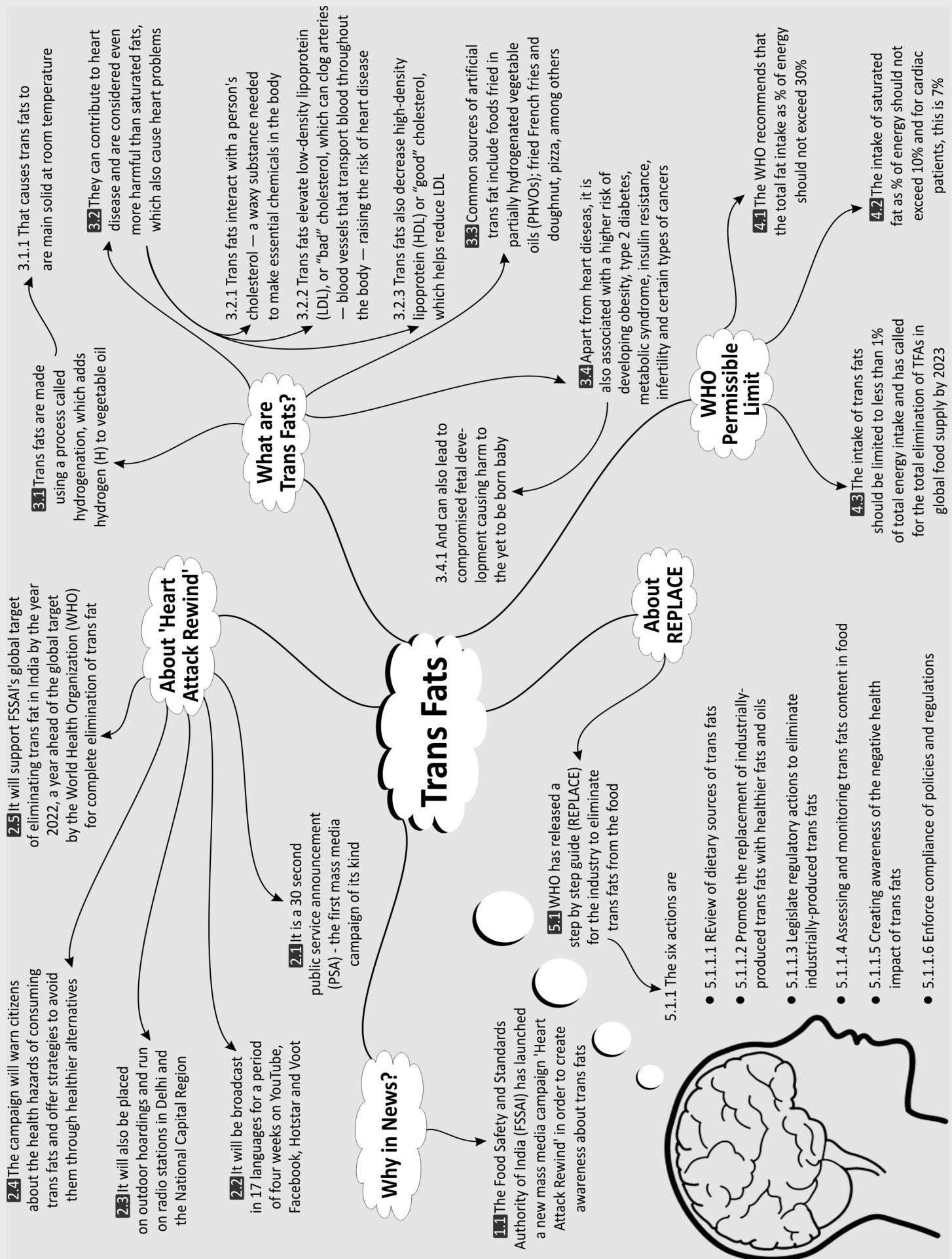


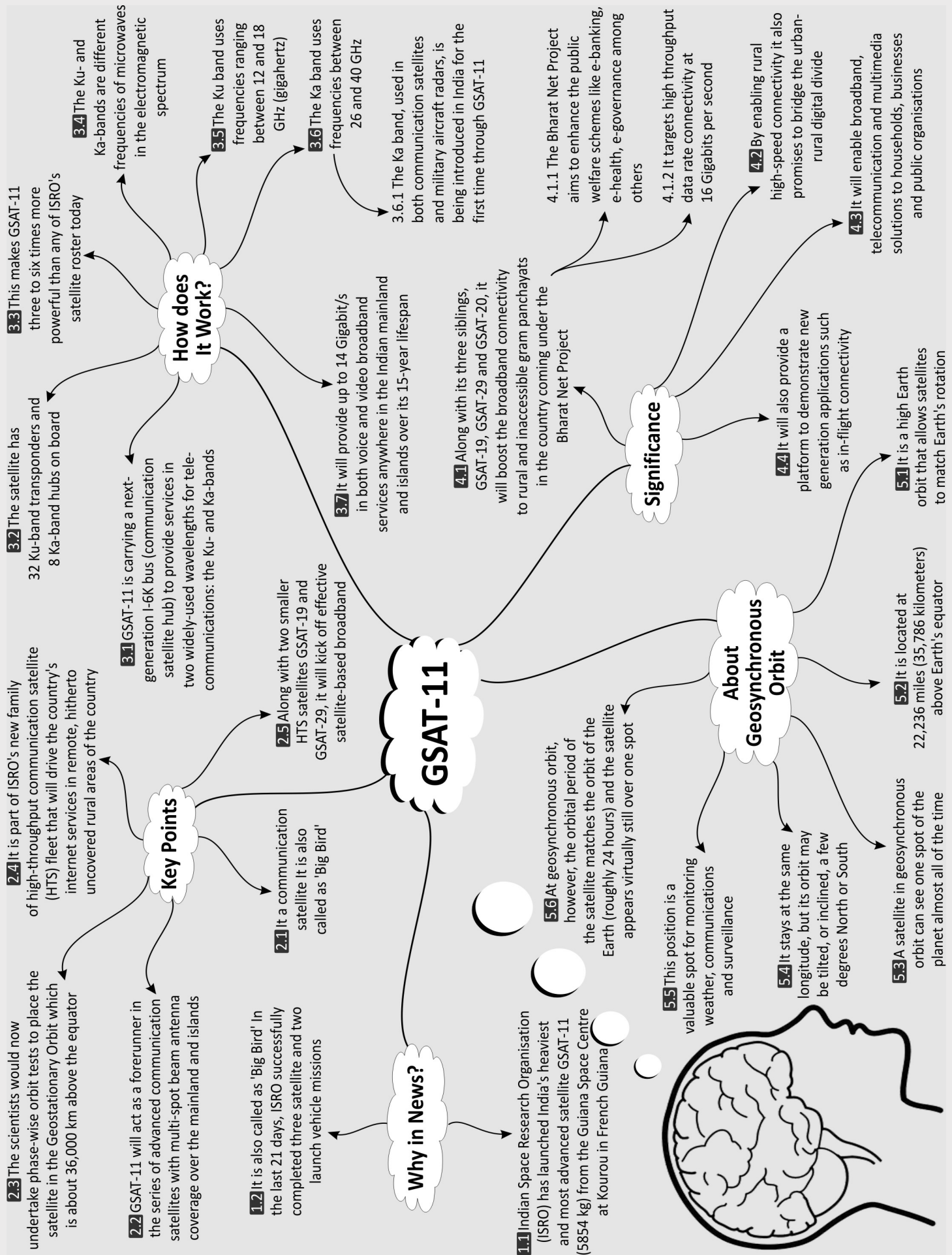
united by language, history, culture, likeness of the democracy, human rights and the rule of law.

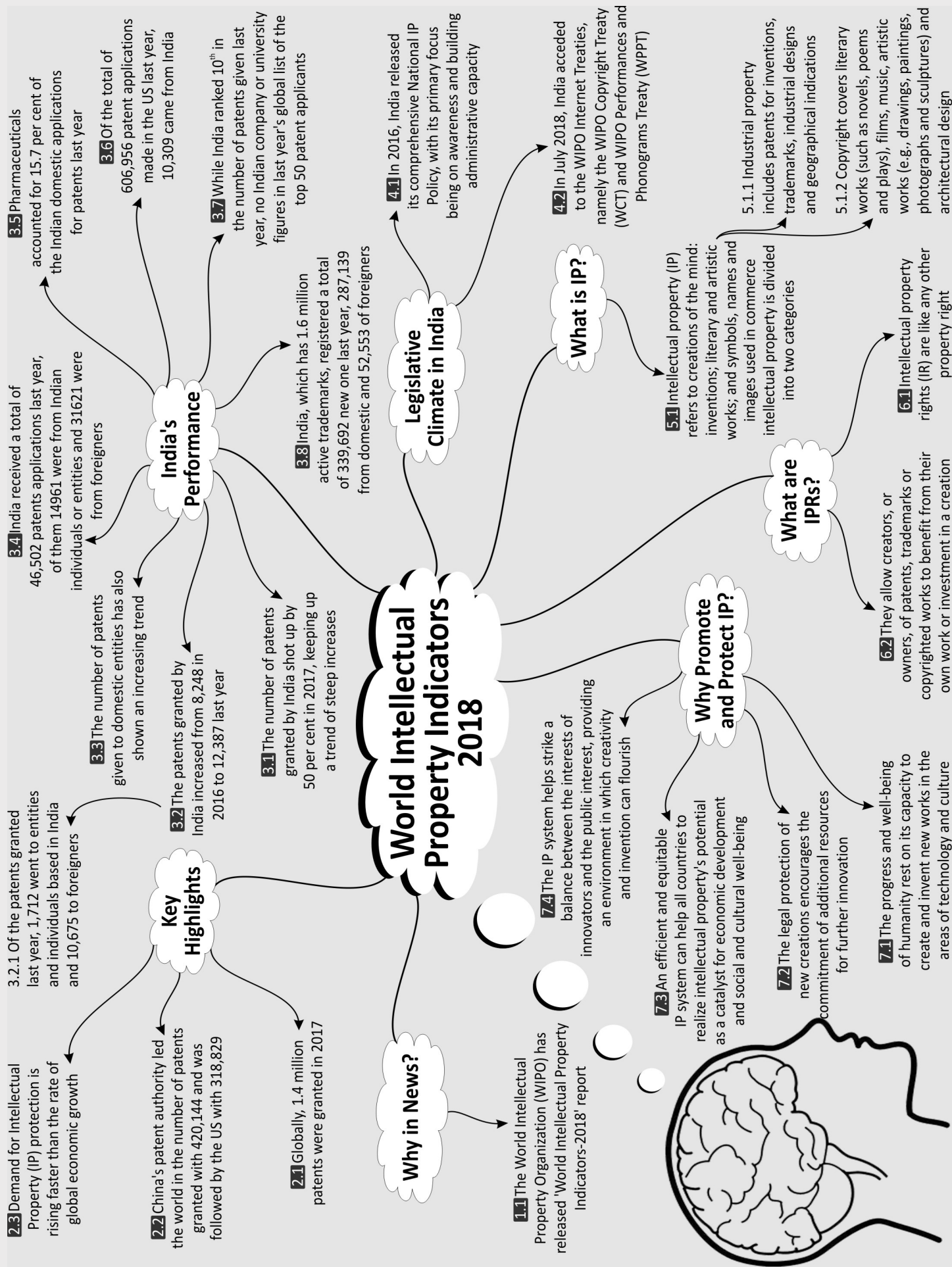
Fifty three countries are members of the Commonwealth. All members have an equal say – regardless of size or economic stature. This ensures even the smallest member countries have a voice in shaping the Commonwealth.

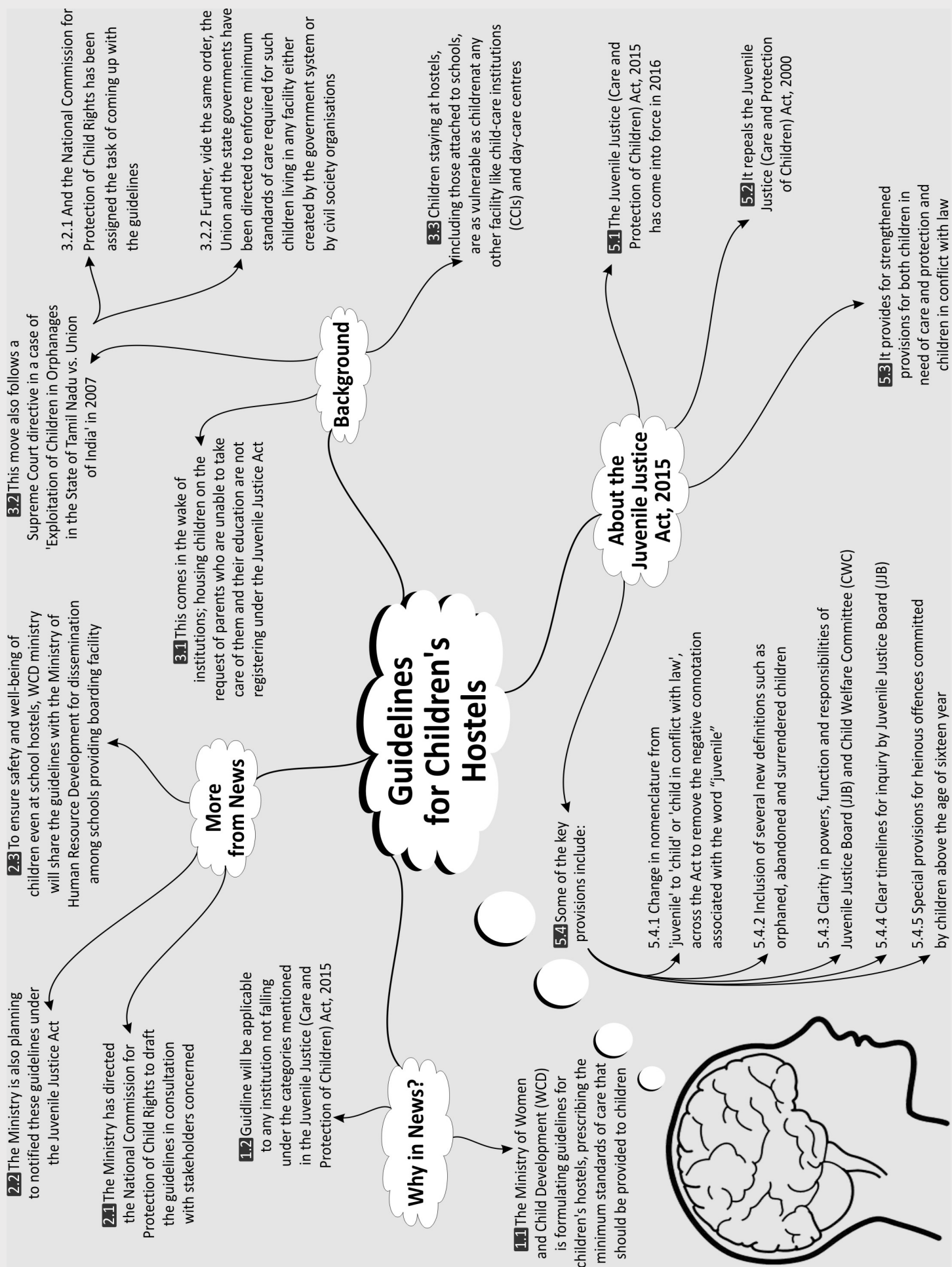
SEVEN BRAIN BOOSTERS

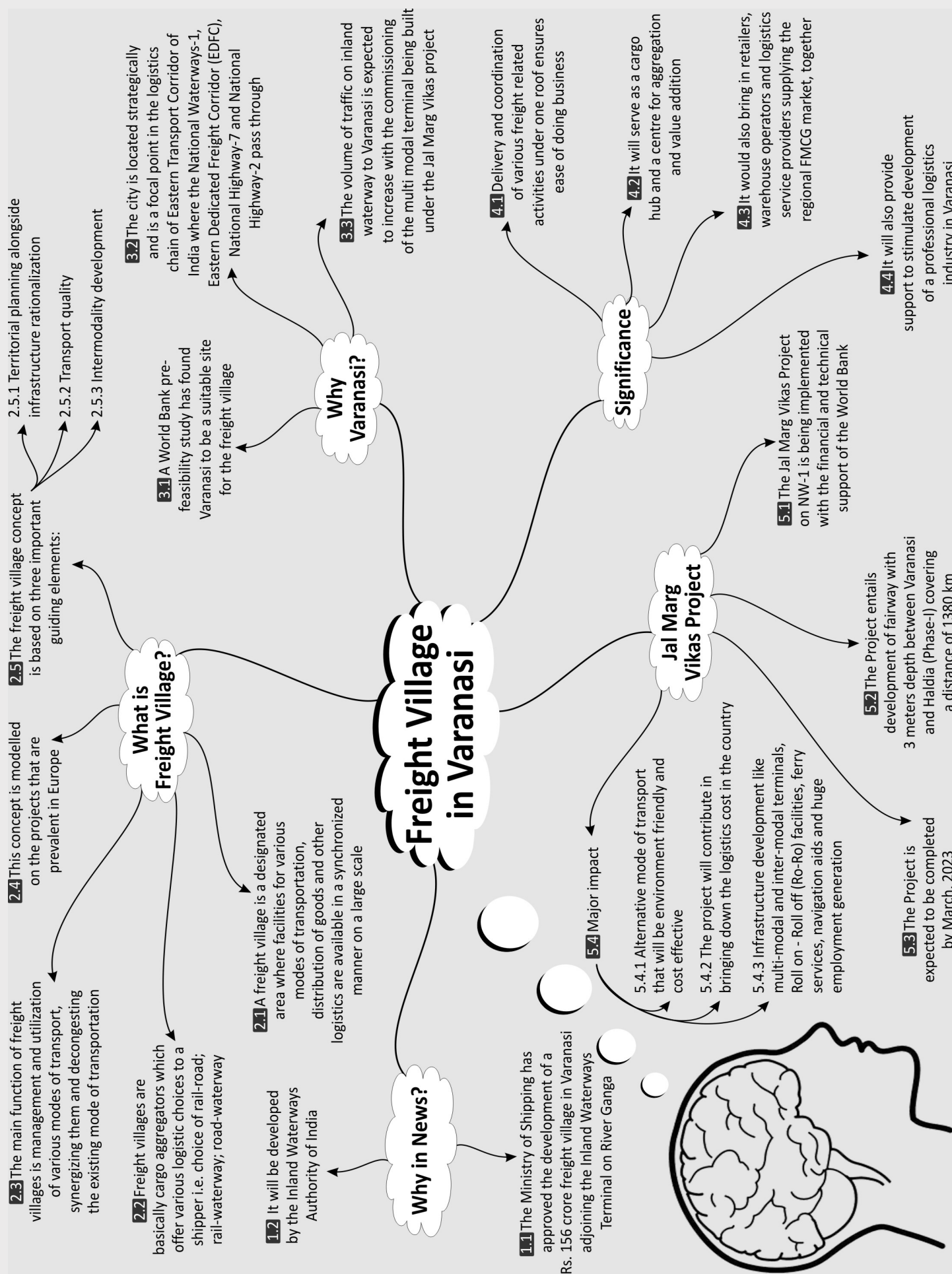


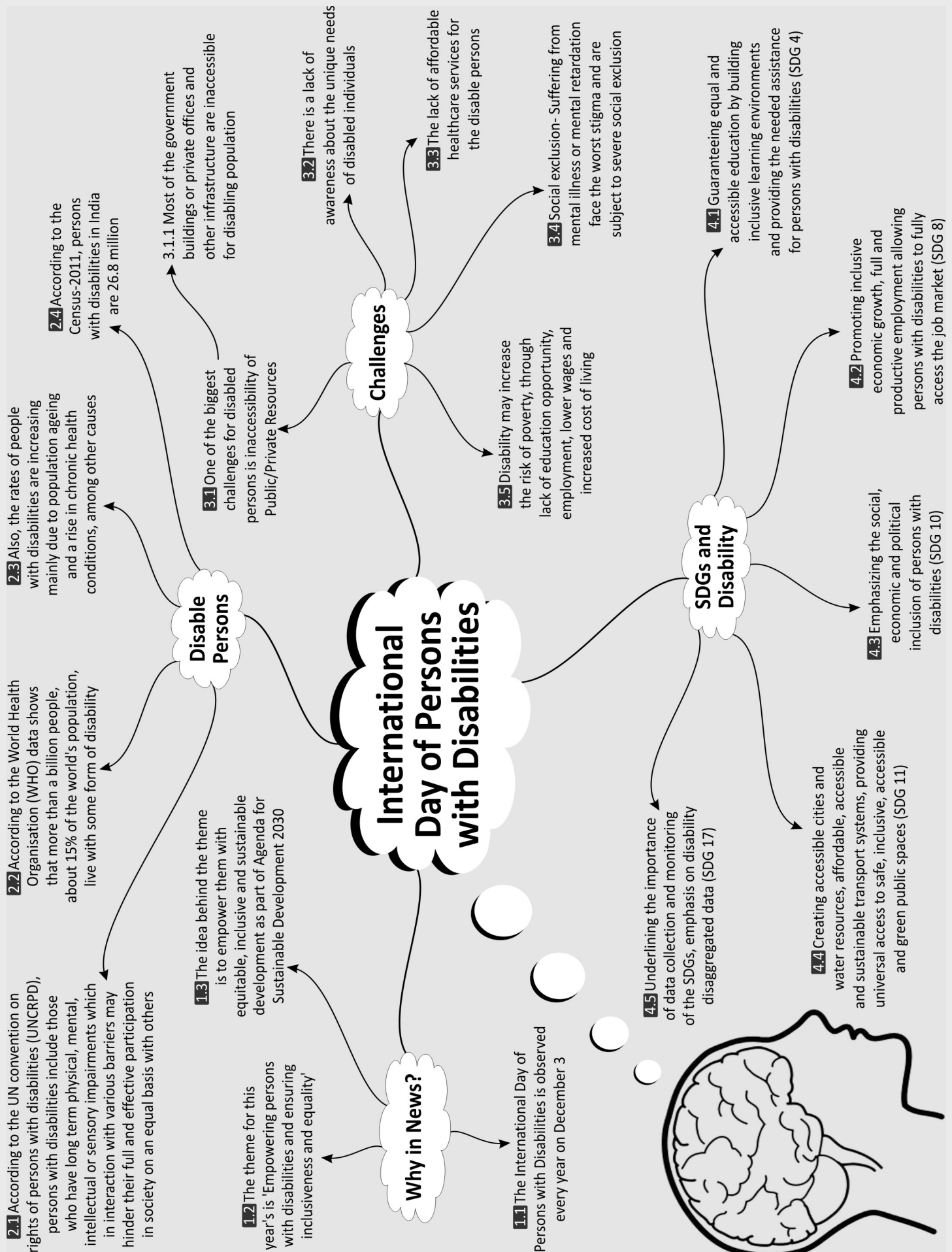












SEVEN MCQ's WITH EXPLANATORY ANSWERS

(Based on Brain Boosters)

Back Series GDP Data

Q1. Consider the following statements in respect of 'Back Series GDP data':

1. From January 2015, the Central Statistics Office (CSO) updated base year for GDP calculation to 2011-12 from 2004-05.
2. The new series includes corporate information from the database of the Ministry of Corporate Affairs (MCA 21) instead of the results obtained from the RBI study on company finances.

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. From January 2015, the Central Statistics Office (CSO) updated base year for GDP calculation to 2011-12 from 2004-05. Base year is carefully selected because of the impact it has on the numbers and the year chosen is usually one in which no serious anomaly was present.

The new series includes corporate information from the MCA21 database of the Ministry of Corporate Affairs instead of the results obtained from the RBI study on company finances, which means a more comprehensive inclusion of corporate data in GDP numbers. It also helps improve accuracy, particularly for the services sector, which accounts for about 60 per cent of GDP.

Trans Fats

Q2. With reference to the Trans fats, consider the following statements:

1. The Ministry of Health and Family Welfare has launched a new mass media campaign 'Heart Attack Rewind' in order to create awareness about Trans fats.
2. Trans fats decrease high-density lipoprotein (HDL) or 'bad' cholesterol, which helps reduce low-density lipoprotein (LDL).

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 Food Safety and Standards Authority of India (FSSAI) has launched a new mass media campaign 'Heart Attack Rewind' in order to create awareness about trans fats. It is a 30 second public service announcement (PSA) - the first mass media campaign of its kind.

Trans fats interact with a person's cholesterol. It elevates low-density lipoprotein (LDL), or "bad" cholesterol, which can clog arteries — blood vessels that transport blood throughout your body — raising the risk of heart disease and also decrease high-density lipoprotein (HDL) or "good" cholesterol, which helps reduce LDL.

GSAT-11

Q3. Consider the following statements in respect of 'GSAT-11':

1. It is part of ISRO's new family of high-throughput communication satellite (HTS) fleet that will drive the country's internet services in remote, hitherto uncovered rural areas of the country.
2. It was successfully launched from the Satish Dhawan Space Centre in Sriharikota.
3. It will provide up to 14 Gigabit/s in both voice and video broadband services anywhere in the Indian mainland or islands over its 15-year lifespan.

Which of the statements given above is/are correct?

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

Answer: (d)

Explanation: Statement 2 is not correct. GSAT-11 was launched from the Guiana Space Centre at Kourou in French Guiana with the help of Ariane-5.

Statement 1 and 3 are correct. It is a communication satellite and will act as a forerunner in the series of advanced communication satellites with multi-spot beam antenna coverage over the mainland and islands. It is part of ISRO's new family of high-throughput communication satellite (HTS) fleet that will drive the country's internet services in remote, hitherto uncovered rural areas of the country. It will

provide up to 14 Gigabit/s in both voice and video broadband services anywhere in the Indian mainland or islands over its 15-year lifespan.

World Intellectual Property Indicators 2018

Q4. Consider the following statements in respect of 'World Intellectual Property Indicators - 2018':

1. The USA patent authority led the world in the number of patents granted with 420,144 and was followed by the China with 318,829.
2. The number of patents granted by India shot up by 50 per cent in 2017, keeping up a trend of steep increases.

Which of the statements given above is/are correct?

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

Answer: (b)

Explanation: Statement 1 is not correct. According to the report, globally, 1.4 million patents were granted in 2017. China's patent authority led the world in the number of patents granted with 420,144 and was followed by the US with 318,829 and demand for Intellectual Property (IP) protection is rising faster than the rate of global economic growth.

Statement 2 is correct. The number of patents granted by India shot up by 50 per cent in 2017, keeping up a trend of steep increases. The patents granted by India increased from 8,248 in 2016 to 12,387 last year.

Guidelines for Children's Hostels

Q5. Consider the following statements:

1. NITI Aayog is formulating guidelines for children's hostels, prescribing the minimum standards of care that should be provided to children.
2. These guidelines will be applicable to any institution not falling under the categories mentioned in the Juvenile Justice (Care and Protection of Children) Act, 2015.

Which of the statements given above is/are correct?

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

Answer: (b)

Explanation: Statement 1 is not correct. The Ministry of Women and Child Development is formulating guidelines for children's hostels, prescribing the minimum standards of care that should be provided to children. This comes in the wake of institutions; housing children on the request of parents who are unable to take care of them and their education, are not registering under the Juvenile Justice (Care and

Protection of Children) Act, 2015.

Statement 2 is correct. These will be applicable to any institution not falling under the categories mentioned in the Juvenile Justice Act, 2015.

Freight Village in Varanasi

Q6. With reference to the 'freight village in Varanasi', consider the following statements:

1. It will be developed by the Ministry of Shipping, with the assistance from World Bank.
2. India will be the first country in Asia to come up with a freight village.

Which of the statements given above is/are correct?

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

Answer: (b)

Explanation: Statement 1 is not correct. The Ministry of Shipping has approved the development of a Rs. 156 crore freight village in Varanasi adjoining the Inland Waterways Terminal on River Ganga. It will be developed by the Inland Waterways Authority of India.

Statement 2 is correct. A freight village is an area where all activities relating to transport, logistics and the distribution of goods both for national and international transit are carried out by various operators. The concept has been widely used in European countries and (is) completely new to Asia. In fact, India will be the first country in Asia to come up with a freight village.

International Day of Persons with Disabilities

Q7. Consider the following statements:

1. The International Day of Persons with Disabilities is observed every year on December 3.
2. The theme for this year's is 'Empowering persons with disabilities and ensuring inclusiveness and equality'.

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 International Day of Persons with Disabilities is observed every year on December 3. The theme for this year's is 'Empowering persons with disabilities and ensuring inclusiveness and equality'. The idea behind the theme is to empower them with equitable, inclusive and sustainable development as part of Agenda for Sustainable Development 2030.

SEVEN IMPORTANT FACTS FOR PRELIMS

1. Which country ordered 18 international NGOs/aid agencies to shut down operations and leave the country?

–Pakistan

2. Reserve Bank of India (RBI) now proposes to set up a separate ombudsman for resolving which type of complaints?

–Digital Payment

3. In which country the United States has resumed a "permanent diplomatic presence" in after 27 years?

–Somalia

4. Kandhamal Haldi (turmeric), is a few steps away from receiving Geographical Indications (GI) tag. In which state is it produced?

–Odisha

5. In which country the 24th conference of the parties (COP24) of the United Nations Climate Change Convention (UNFCCC) held?

–Katowice, Poland

6. Which state launched Mukhya Mantri Teerth Yatra Yojana', for senior citizens of state (above 60 years) to undertake free pilgrimage?

–Delhi

7. Who retained the top spot Forbes' ranking of 'The World's 100 Most Powerful Women of 2018', for the 8th year in a row?

–Angela Merkel



SEVEN DISEASES IN NEWS

1. Japanese Encephalitis

- ◆ A large number of child deaths occurred at the state-run BRD Medical College hospital in Gorakhpur city of Uttar Pradesh, India in 2017. Acute encephalitis syndrome (AES) was a major cause of the deaths.
- ◆ Encephalitis (also known as Japanese Encephalitis) is a rare infection caused by mosquito bites that are found in one out of the two million people.
- ◆ It is a kind of brain fever caused by viral infection.

How it Spreads?

- ◆ When a culex mosquito species sucks blood of pigs or wild birds with the disease, the virus of that disease reaches the mosquito.
- ◆ When this mosquito bites a healthy person, then the person is prone to this disease. This disease spreads through the bite of a mosquito called Qulex Trininotics.
- ◆ The symptoms of this disease are seen between 5 to 15 days in the affected person. This is called 'incubation period'.
- ◆ This disease spreads in the months of August to October of the year.

Symptoms

- ◆ Fever, headache, neck tightness, weakness and vomiting are the initial symptoms of this fever.
- ◆ Due to this fever, the disease is not recognized, because these symptoms are found mostly in all types of fever.
- ◆ Symptoms in young children includes crying for long, lack of hunger, fever and vomiting.

- ◆ It is not a contagious disease. This disease is mostly found in children aged 1 to 14 years and persons above 65 years.

Prevention

- ◆ Malathian (Pesticide) prevents culex mosquitoes from being born.
- ◆ Use of mosquito nets while sleeping at night, wearing full sleeve dresses are some other measures.
- ◆ If the patient suffering from this disease is in a state of unconsciousness, then avoid putting anything in his mouth.
- ◆ Timely vaccination and cleanliness are some other suggested measures.

2. Nipah Virus

- ◆ An outbreak of the Nipah virus in the state of Kerala, occurred in May 2018. It was localized in Kozhikode and Malappuram districts of Kerala claiming 17 lives. This is the third outbreak reported in India, with previous ones having occurred in 2001 (45 deaths) and 2007 (5 deaths).
- ◆ Nipah virus (NiV) is a member of the family Paramyxoviridae, genus Henipavirus. NiV was initially isolated and identified in 1999 during an outbreak of encephalitis and respiratory illness among pig farmers and people with close contact with pigs in Malaysia and Singapore.

Transmission

- ◆ Transmission of Nipah virus to humans may occur after direct contact with infected bats, infected pigs, or from other NiV infected people. Person-to-person transmission

of Nipah virus in Bangladesh and India is regularly reported. This is most commonly seen in the family and care-givers of Nipah virus-infected patients.

Signs and Symptoms

- ♦ Infection with Nipah virus is associated with encephalitis (inflammation of the brain). After exposure and an incubation period of 5 to 14 days, it shows signs of fever and headache, followed by drowsiness, disorientation and mental confusion. These symptoms can escalate to coma within 24-48 hours. Some patients have a respiratory illness during the early part of their infections, and half of the patients showing severe neurological signs also develop pulmonary signs.

Prevention

- ♦ Nipah virus infection can be prevented by avoiding exposure to infected pigs and bats in endemic areas and not drinking raw date palm sap. Additional efforts focused on surveillance and awareness will help prevent future outbreaks.

3. Zika Virus

- ♦ After the recent increase in cases of Zika virus in Rajasthan, the situation has become alarming. It's threat is eminent in Delhi too.
- ♦ The Zika virus belongs to the family Flaviviridae family and the genus Flavivirus, thus is related to the dengue, yellow fever, Japanese encephalitis, and West Nile viruses.

Transmission

- ♦ Zika virus is transmitted to people primarily through the bite of an infected Aedes species mosquito (Ae. aegypti and Ae. albopictus). These are the same mosquitoes that spread dengue and chikungunya viruses.
- ♦ A pregnant woman can pass this to her fetus during pregnancy, where it is a cause of microcephaly and other severe fetal brain defects. Zika can also be passed through sex

from a person who has Zika to his or her partners. It can also be passed through blood transfusion and through laboratory and healthcare setting exposure.

Symptoms

- ♦ Many people infected with Zika virus won't have symptoms or will only have mild symptoms. The most common symptoms of Zika are fever, rash, headache, joint pain, conjunctivitis (red eyes), muscle pain.

Prevention

- ♦ Infected people should get plenty of rest, drink fluids to prevent dehydration, and take acetaminophen for fever and pain. Aspirin or other nonsteroidal anti-inflammatory drugs (NSAIDs) should not be taken until dengue is ruled out, to reduce bleeding risk. While other prevention measures include preventing mosquito bites, safe sex etc.

4. Swine Flu

- ♦ Three persons have died from H1N1 viral attack (swine flu) in Mysuru and Chamarajanagar in Karnataka since the past 6 months.
- ♦ H1N1 flu is also known as swine flu. It's called swine flu because in the past, the people who caught it had direct contact with pigs. In 2009, H1N1 was spreading fast around the world, so the World Health Organization called it a pandemic. Since then, people have continued to get sick from swine flu, but not as many.

Transmission

- ♦ It is transmitted in the same way as the seasonal flu. People who are contaminated with it, can spread it via cough or sneeze. It can be spread from one day before any signs of symptoms to as many as 7 days after feeling sick. Kids can be contagious for as long as 10 days.

Symptoms

- ◆ These, too, are pretty much the same as seasonal flu. They can include: cough, fever, sore throat, stuffy or runny nose, body aches, headache, chills, fatigue.

How is it Treated?

- ◆ Some of the same antiviral drugs that are used to treat seasonal flu also work against H1N1 swine flu. Oseltamivir (Tamiflu), peramivir (Rapivab), and zanamivir (Relenza) seem to work best, although some kinds of swine flu don't respond to oseltamivir.

5. Bird Flu

- ◆ Bird flu, also called avian influenza, is a viral infection that can infect not only birds, but also humans and other animals. Most forms of the virus are restricted to birds. H5N1 is the most common form of bird flu. It's deadly to birds and can easily affect humans and other animals that come in contact with a carrier.

Transmission

- ◆ H5N1 occurs naturally in wild waterfowl, but it can spread easily to domestic poultry. The disease is transmitted to humans through contact with infected bird feces, nasal secretions, or secretions from the mouth or eyes.

Symptoms

- ◆ H5N1 infected people can experience typical flu-like symptoms such as: cough, diarrhea, respiratory difficulties, fever (over 100.4°F or 38°C), headache, muscle aches, malaise, runny nose and sore throat.

Treatment

- ◆ Different types of bird flu can cause different symptoms. As a result, treatments may vary.
- ◆ In most cases, treatment with antiviral medication such as oseltamivir (Tamiflu) or zanamivir (Relenza) can help reduce the severity of the disease. However, the medication must be taken within 48 hours after symptoms first appear.

Prevention

- ◆ We can minimize our risk by avoiding:
 - Open-air markets
 - Contact with infected birds
 - Undercooked poultry
- ◆ Be sure to practice good hygiene and washing hands regularly.
- ◆ Foods and Drugs Administration(FDA) has approved a vaccine designed to protect against the avian flu, but the vaccine isn't currently available to the public.

6. Ebola Virus

- ◆ This disease was first identified in 1976 in two outbreaks in South Sudan and Congo. The largest outbreak was the epidemic in West Africa claiming more than 10,000 lives. Again in August 2018, an outbreak has been reported in Congo.
- ◆ Ebola virus disease (EVD), formerly known as Ebola haemorrhagic fever, is a severe, often fatal illness in humans.

Transmission

- ◆ Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals such as chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest.
- ◆ Ebola then spreads through human-to-human transmission via direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and with surfaces and materials (e.g. bedding, clothing) contaminated with these fluids.

Symptoms of Ebola Virus Disease

- ◆ The incubation period, that is, the time interval from infection with the virus to onset of symptoms is 2 to 21 days. Humans are not infectious until they develop symptoms. First symptoms are the sudden onset of

fever fatigue, muscle pain, headache and sore throat. This is followed by vomiting, diarrhoea, rash, symptoms of impaired kidney and liver function, and in some cases, both internal and external bleeding (e.g. oozing from the gums, blood in the stools). Laboratory findings include low white blood cells and platelet counts and elevated liver enzymes.

Prevention

- ◆ Community engagement is key to successfully controlling outbreaks. Good outbreak control relies on applying a package of interventions, namely case management, infection prevention and control practices, surveillance and contact tracing, a good laboratory service, safe and dignified burials and social mobilisation.
- ◆ Early supportive care with rehydration, symptomatic treatment improves survival. There is as yet no licensed treatment proven to neutralize the virus but a range of blood, immunological and drug therapies are under development.

7. SARS Virus

- ◆ Severe acute respiratory syndrome, or SARS, is a contagious and potentially fatal respiratory illness.
- ◆ It first appeared in China in November 2002 and was identified in February 2003.

What is SARS?

- ◆ SARS is extremely contagious, and many wore face masks during the last outbreak in 2002.
- ◆ The SARS coronavirus (SARS-CoV) causes SARS. A coronavirus is a common form of virus that typically causes upper-respiratory tract illnesses and common cold.

Causes

- ◆ Droplets from coughing and sneezing and close human contact, transmit the SARS virus. The respiratory droplets are probably absorbed into the body through the mucous membranes of the mouth, nose, and eyes.

Transmission

- Hugging and kissing
- Sharing utensils for eating and drinking
- Speaking to someone within a distance of 3 feet
- Touching someone directly

Symptoms

- ◆ Most cases of SARS begin with a high fever. Other early symptoms include those common to flu, such as aches, chills, diarrhea, dry coughing, and shortness of breath. These will develop over the course of a week.
- ◆ Patients may go on to develop pneumonia, an infection of the lungs.

Treatment and Prevention

- ◆ The WHO recommends isolating patients and using barrier techniques to prevent the spread of the virus, including filter masks and goggles. No drug, including antibiotics, appears to be effective against SARS.
- ◆ Effective personal hygiene can help to stop the spread of SARS.

These include:

- Frequent handwashing
- Avoiding touching the eyes, mouth or nose with unclean hands
- Covering the mouth and nose with a tissue when coughing or sneezing
- Encouraging others to do the same

SEVEN PRACTICE QUESTIONS FOR MAIN EXAM

Answer each of the following questions in 200 words:

- Q1. Women play key roles in food provisioning as producers, home food managers and consumers. But women's productivity depends crucially on access to land, which is highly gender unequal due to male bias in inheritance, government land transfers and market access. Discuss why gender equality is key to food security in India.
- Q2. Can Ayushman Bharat make a robust primary health-care system and a healthier India? Do you agree? Critically analyse.
- Q3. The 'Agriculture Export Policy, 2018' seeks to double farm exports by 2022. Discuss the provisions of this policy and its implications on Indian farmers.
- Q4. While India's absolute contribution in Carbon Emission is lower than that of China, the US or the EU, that does not dilute India's obligation to do more to further reduce the carbon-intensity of its economic growth. Discuss why India should lead in climate technology.
- Q5. Despite laws, policies and their implementation, the transgender community continues to remain quite marginalised and highly vulnerable. A multi-pronged approach is needed to ensure the socio-economic uplift of the transgender community. Comment.
- Q6. 'China is struggling to manage its structural growth deceleration, while India is struggling to accelerate its potential for higher trend growth.' Discuss.
- Q7. What is meant by conflict of interest? Illustrate with examples, the difference between the actual and potential conflicts of interest.

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UPPCS Mains Test Series 2018



**02
Dec.**

Test-1 - (12:00Noon-3:00pm)

Modern India, India After Independence,
World History, History of Uttar Pradesh

**09
Dec.**

Test-2 - (12:00Noon-3:00pm)

Social Issues, Art & Culture ,
Uttar Pradesh (Social Issues, Art & Culture)

**16
Dec.**

Test-3 - (12:00Noon-3:00pm)

World Geography, Indian Geography,
Geography of Uttar Pradesh

**23
Dec.**

Test-4 - (12:00Noon-3:00pm)

Indian Polity, Constitution,
In special reference of Uttar Pradesh

**30
Dec.**

Test-5 - (12:00Noon-3:00pm)

Governance and Public Policy,
International Relation
In Special Reference of Uttar Pradesh

**06
Jan.**

Test-6 - (12:00Noon-3:00pm)

Indian Economy, Internal Security
in Special Reference of Uttar Pradesh

**13
Jan.**

Test-7 - (12:00Noon-3:00pm)

Science & Tech., Disaster Management,
Ecology & Environment

**20
Jan.**

Test-8 - (12:00Noon-3:00pm)

Ethics (Paper-I)
Ethics and Human Interface, Attitude,
E.I. and Thinkers with Case Study

**27
Jan.**

Test-9 - (12:00Noon-3:00pm)

Ethics (Paper-II)
Aptitude and Value of Civil Services, Ethics
in P.A., Probity in Govt. with Case Study

**03
Feb.**

Test-10 - (12:00Noon-3:00pm)

General Studies (Paper-I) Full Test

Test-11 - (3:30pm-6:30pm)

Hindi Full Test

**10
Feb.**

Test-12 - (12:00Noon-3:00pm)

General Studies (Paper-II) Full Test

Test-13 - (3:30pm-6:30pm)

Essay

**17
Feb.**

Test-14 - (12:00Noon-3:00pm)

General Studies (Paper-III) Full Test

Test-15 - (3:30pm-6:30pm)

Hindi Full Test

**24
Feb.**

Test-16 - (12:00Noon-3:00pm)

General Studies (Paper-IV) Full Test

Test-17 - (3:30pm-6:30pm)

Essay

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