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SEVEN IMPORTANT ISSUES

1. UNIVERSAL BASIC INCOME: IS A PANACEA TO INDIA'S POOR

Why in News?

Congress president Rahul Gandhi, in Chhattisgarh, promised to bring in a minimum basic income scheme if voted to power in the upcoming Lok Sabha elections. Subsequently, union minister Piyush Goyal announced a similar scheme for small and marginal farmers across the country. These latest pre-poll promises have again started the debate regarding the feasibility of Universal Basic Income (UBI) in India.

Introduction

Universal Basic Income is a radical and compelling paradigm shift in thinking about both social justice and a productive economy. It is premised on the idea that a just society needs to guarantee to each individual a minimum income which they can count on, and which provides the necessary material foundation for a life with access to basic goods and a life of dignity. A universal basic income is, like many rights, unconditional and universal: it requires that every person should have a right to a basic income to cover their needs, just by virtue of being citizens.

The Indian UBI trials were organized by UNICEF, in cooperation with a local trade union SEWA (Self-Employed Women's Association), in the rural areas of Madhya Pradesh, in 2010-2011. For an 18 month period, about a dozen villages (consisting of over 6000 individuals) were given small cash basic income transfers. Other villages were used as control groups. According to

the final report (2014), there were significant outcomes in terms of improvements in the recipients' "living conditions, nutrition, health, schooling, economic activity, agency" and other indicators. Contrary to popular fears, giving people cash "did not lead to a net reduction in adult work."

There have been suggestions to expand the UBI policies nation-wide in India, partially to replace other welfare transfers. In February 2017, the Indian Ministry of Finance released its annual Economic Survey 2016-2017, which argues that "serious consideration be given to the new idea of a universal basic income as a more effective way of achieving Mahatma Gandhi's objectives of wiping every tear from every eye. The report acknowledges that universalism makes sense since "India's record of targeting welfare programmes to the poor has been suspect. Targeting has been both inefficient and inequitable, a license to fraud that spawned an entire ecosystem of middlemen and petty abuse." However, as the current state of India is not ready for the immediate implementation of universal basic income, the report argues for "gradualism" instead, which provides a long-term road map for the implementation of UBI. The report concludes cautiously that "UBI is a powerful idea whose time even if not ripe for implementation is ripe for serious discussion." India remains on the fence: more than curious, but not committed to full-blown implementation.

Background

Grassroots activism for basic income has increased greatly since 2010. In addition, many prominent European social scientists have now come out in favour of it – among them several Nobel laureates in economics. In few countries some major politicians, including from parties in government, are also beginning to stick their necks out in support of it. The inability to tackle unemployment with conventional means has, in the last decade or so, become a major reason for the idea being taken seriously globally by a growing number of scholars and organizations. Social policy and economic policy can no longer be conceived separately and UBI is increasingly viewed as the only viable way of reconciling two of their respective central objectives: poverty relief and full employment.

Despite making remarkable progress in bringing down poverty from about 70 percent at independence to about 22 percent in 2011-12 (Tendulkar Committee), it can safely be said that "wiping every tear from every eye" is about a lot more than being able to imbibe a few calories. And the Mahatma understood that better, deeper, and earlier than all the Marxists, market messiahs, materialists and behaviouralists. He intuited that it is also about dignity, invulnerability, self-control and freedom, and mental and psychological unburdening. From that perspective, Nehru's exhortation that "so long as there are tears and

suffering, so long our work will not be over” is very much true nearly 70 years after independence.

Universal Basic Income

The idea of a universal basic income is that the state should give to all citizens (or residents) a modest regular cash transfer, regardless of their job situation, social status, family position or other discriminating factors. The only limiting conditions, in most UBI models, are 1) residency/citizenship, 2) age of reason (adulthood), and 3) obedience to the laws of the country.

A basic income is a periodic cash payment unconditionally delivered to all on an individual basis, without means-test or work requirement.

That is, basic income has the following five characteristics:

- ◆ **Periodic:** It is paid at regular intervals (for example every month), not as a one-off grant.
- ◆ **Cash payment:** It is paid in an appropriate medium of exchange, allowing those who receive it to decide what they spend it on. It is not, therefore, paid either in kind (such as food or services) or in vouchers dedicated to a specific use.
- ◆ **Individual:** It is paid on an individual basis—and not, for instance, to households.
- ◆ **Universal:** It is paid to all, without means test.
- ◆ **Unconditional:** it is paid without a requirement to work or to demonstrate willingness-to-work.

A wide variety of Basic Income proposals are circulating today. They differ along many other dimensions, including in the amounts of the Basic Income, the source of funding, the nature and size of reductions in other transfers that might accompany it, and so on. No nation has yet implemented a full-scale UBI model, but this is changing rapidly

A basic income is a “disarmingly simple” but hotly debated idea. It has been variously called “universal basic income” (UBI), “basic income guarantee” (BIG) and “negative income tax” (NIT).

Why UBI Required?

The time has come to think of UBI for a number of reasons:

Social Justice: UBI is, first and foremost, a test of a just and non-exploitative society. From Tom Paine to John Rawls, nearly every theory of justice has argued that a society that fails to guarantee a decent minimum income to all citizens will fail the test of justice.

Poverty Reduction: Conditional on the presence of a well-functioning financial system, a Universal Basic Income may simply be the fastest way of reducing poverty.

Employment: UBI is an acknowledgement that society’s obligation to guarantee a minimum living standard is even more urgent in an era of uncertain employment generation.

Administrative Efficiency: In India in particular, the case for UBI has been enhanced because of the weakness of existing welfare schemes which are riddled with misallocation, leakages and exclusion of the poor.

Choice: A UBI treats beneficiaries as agents and entrusts citizens with the responsibility of using welfare spending as they see best; this may not be the case with in-kind transfers.

Better targeting of poor: As all individuals are targeted, exclusion error (poor being left out) is zero though inclusion error (rich gaining access to the scheme) is 60 percent.

Insurance against shocks: This income floor will provide a safety net against health, income and other shocks.

Improvement in financial inclusion: Payment – transfers will encourage greater usage of bank accounts, leading to higher profits for banking correspondents (BC) and an endogenous improvement in financial inclusion. Credit – increased income will release the constraints on access to credit for those with low income levels.

Psychological benefits: A guaranteed income will reduce the pressures of finding a basic living on a daily basis.

State Efforts on UBI

Sikkim’s SDF government has assured universal basic income to its 6.10 lakh people by 2022. The northeastern state of Sikkim could become the first to implement a universal basic income (UBI) to all its residents. The idea of a UBI has been tested in states like Gujarat, Madhya Pradesh and tribal belts with fairly large samples and it can be implemented in a state like Sikkim. In more constrained terms, the Telangana government’s Rythu Bandhu scheme and Odisha’s KALIA also assure a fixed amount to farmers.

KALIA: The scheme primary targets are small farmers, cultivators and landless agricultural labourers. Called Krushak Assistance for Livelihood and Income Augmentation (KALIA), the scheme involves payments to encourage cultivation and associated activities. KALIA scheme has 5 components i.e. support to growers for cultivation, income support for landless agricultural labourers, life insurance support for farmers and landless agricultural labourers, financial help to helpless agricultural families and interest free crop loan.

Rythu Bandhu: In the state of Telangana, the ruling party TRS went a step further by implementing several months before the elections a scheme called Rythu Bandhu, (Farmer Investment Support) which gives to the farmers Rs. 8000 per acre per annum. The cutting edge of the scheme is that it is unconditional, a feature that is considered central to the idea of basic income. Irrespective of whether farmers take up cultivation or not, the money will be transferred to the farmers. The scheme benefited about 5.8 million farmers who own a total of 14 million acres of cultivable land in Telangana.

Arguments Against UBI

- ◆ **Conspicuous Spending:** Households, especially male members, may spend this additional income on wasteful activities.
- ◆ **Moral hazard (reduction in labour supply):** A minimum guaranteed income might make people lazy and opt out of the labour market.
- ◆ **Gender disparity induced by cash:** Gender norms may regulate the sharing of UBI within a household – men are likely to exercise control over spending of the UBI. This may not always be the case with other in-kind transfers.
- ◆ **Implementation:** Given the current status of financial access among the poor, a UBI may put too much stress on the banking system.
- ◆ **Fiscal cost given political economy of exit:** Once introduced, it may become difficult for the government to wind up a UBI in case of failure.
- ◆ **Political economy of universality – ideas for self-exclusion:** Opposition may arise from the provision of the Transfer to rich individuals as it might seem to trump the idea of equity and state welfare for the poor.
- ◆ **Exposure to market risks (cash vs. food):** Unlike food subsidies that are not subject to fluctuating market prices, a cash transfer's purchasing power may severely be curtailed by market fluctuations.
- ◆ **Fiscal cost given political economy of exit:** Once introduced, it may become difficult for the government to wind up a UBI in case of failure.

Universal Basic Income vs Universal Basic Capital

A simplistic UBI will not solve the fundamental problems of the economy. An unavoidable solution to fix India's fundamental problems

is the strengthening of institutions of the state to deliver the services such as public safety, justice and basic education and health, which should be available to all citizens regardless of their ability to pay for them. The institutions of the state must be strengthened also to regulate delivery of services by the private sector and ensure fair competition in the market. The building of state institutions, to deliver and to regulate, will require stronger management, administrative, and political capabilities, not better economists.

A better solution to structural inequality than UBI is universal basic capital, or UBC, which has begun to pop up in international policy circles. In this alternative approach, people own the wealth they generate as shareholders of their collective enterprises. Amul, SEWA, Grameen, and others have shown a way. Some economists go further and also propose a 'dividend' for all citizens, by providing them a share of initial public offerings on the stock market, especially from companies that use 'public assets', such as publicly funded research, or environmental resources.

International Experiments: Then and Now

The U.S. and Canadian Experiments: 1960-1980

- ◆ The earliest Western UBI/NIT experiments were conducted from the late 1960s to the early 1980s, in the United States and Canada. The results of the U.S. NIT experiments were ambiguous. The modest reductions in labour market participation, especially among mothers, alarmed policy-makers.
- ◆ At the same time, 1,300 Canadians took part in experiments in Winnipeg and Dauphin, Manitoba and shown that the Canadian "Guaranteed Annual Income"

(GAI) experiments, also collectively known as the MINCOME experiments (1974-1979), had significant effects on the rate of hospitalisation, mental health and school attendance, suggesting that UBI "may improve health and social outcomes at the community level."

The Anomaly of Alaska and Iran: 1980 to Today

There are a few "quasi-UBI" models. The Alaskan and the Iranian cases are instructive, but also anomalies, since they are made possible by the presence of abundant natural resources. The main reason why they cannot be directly compared to full-blown UBI experiments, however, is not the source of their funding - since this should not affect recipient outcomes - but their limited scope: they are not high enough for people to live on without external means of support.

Into Tomorrow: Upcoming UBI Experiments

- ◆ **Canada:** Interest in basic income has swelled in Canada in recent years. In 2016, the Liberal Party passed a resolution to "develop a poverty reduction strategy aimed at providing a minimum guaranteed income.". The mayors of Calgary and Edmonton have supported UBI in the past. Several provinces have expressed interest in running UBI experiments, but the Liberal-dominated Ontario Province are set to go forward with a NIT model of its own: many details of the plan are still undecided, but the preliminary plan is to give some 2,500 people, in three different cities, roughly C\$1,320 a month; individuals with disabilities being eligible for an extra C\$500 or so.
- ◆ **The Netherlands:** UBI experiments have also been planned in various Dutch cities, including Utrecht and many other cities, but the fate of the experiments is unclear.

- ◆ **Scotland:** The Scottish Government has expressed "interest" in basic income. The Scottish National Party (SNP) backed UBI already in the spring of 2016, stating that it can "potentially provide a foundation to eradicate poverty, make work pay and ensure all our citizens can live in dignity." Four areas - Glasgow, Edinburgh, Fife and North Ayrshire - have committed to launching regional experiments with financial support from the Scottish Government.
- ◆ **Uganda:** Similar to what GiveDirectly are doing in Kenya, a Belgian charity called Eight are funding a two-year UCT/UBI experiment in the region of Fort Portal in Uganda. Starting in 2017, a single Ugandan village, consisting of 50 households, will receive monthly UBI payments of 18.25 USD per adult, and 9.13 USD per child.
- ◆ **United States:** Y Combinator of Silicon Valley a UBI experiment in Oakland, California, which has started in 2017, "to run a large, long-term study to answer a few key questions: how people's happiness, well-being, and financial health are affected by basic income, as well as how people might spend their time." The first stage consists of

giving just 100 individuals about \$1,000 to \$2,000 per month for 6 to 12 months. It is curious to note that the recipients will include both employed and unemployed people from all demographics. Contingent on the successful completion of stage one, the second stage will consist of expanding the trial to 2,000- 3,000 people for a duration of 2 to 3 years. It would thus equal or surpass the Finnish experiment in scope.

Way Forward

Many reasons have all been invoked in basic income's favour, including liberty and equality, efficiency and community, common ownership of the Earth and equal sharing in the benefits of technical progress, the flexibility of the labour market and the dignity of the poor, the fight against inhumane working conditions, against the desertification of the countryside and against interregional inequalities, the viability of cooperatives and the promotion of adult education, autonomy from bosses, husbands and bureaucrats.

"Wiping every tear from every eye" based on the principles of universality, unconditionality and agency the hallmarks of a Universal Basic Income

is a conceptually appealing idea. A number of implementation challenges lie ahead, especially the risk that UBI would become an add-on to, rather than a replacement of, current anti-poverty and social programs, which would make it fiscally unaffordable.

However, a simplistic universal basic income will not solve the fundamental problems of the economy.

The better solutions to create more equitable growth than the UBI are: one, focus on building state capacity beginning with implementation of the recommendations of the Second Administrative Reforms Commission. Two, strengthen the missing middle-level institutions for aggregation of tiny enterprises and representation of workers. Three, the creativity of economists could be better applied to developing ideas for UBC than UBI.

General Studies Paper- II

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

Topic: Issues relating to poverty and hunger.

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2. MGNREGA: JOURNEY SO FAR

Why in News?

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme has been allocated Rs. 60,000 crore in the Budget for 2019-20. It is less than what was spent on the scheme in the current year, that is, the revised estimate for 2018-19, which stands at Rs. 61,084 crore. The original 2018-19 Budget allocation for the scheme, a lifeline for

landless labourers and rural workers, was Rs. 55,000 crore. However, by the end of 2018, 99% of the funds had been exhausted. A number of states already had a negative net balance. The Rural Development Ministry, which administers the scheme, asked for a supplementary allocation and was granted Rs. 6,084 crore in early January, taking the revised estimate for the year to Rs. 61,084 crore.

Introduction

Development of the rural household is very crucial for the development of India as a whole. Inclusive and equitable growth would unlock the potential of the huge rural household that are presently in a state where there is lack of access to basic amenities and they are deprived of their basic needs to survive in this world. To come out of this situation, the government of India

launched its flagship scheme 'Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS)' through the Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (hereafter 'MNREGA') in 2006, which provides 100 days of guaranteed work in a year to the rural household. It is acclaimed to be the largest public works employment project in the world.

The objective of this initiative was "enhancing livelihood security in rural areas by providing at least 100 days of guaranteed wage employment in a financial year, to every rural household whose adult members volunteer to do unskilled manual work". The person applying for the work under this scheme has to be provided with employment within 15 days of application, if the employment is not provided within the stipulated time that person would be entitled to unemployment allowance. The ultimate objective of this project is reducing poverty in rural areas. The first phase of the implementation of this act covered over 200 districts in 2006 and in 2007 it was extended to 150 additional districts and 2008 onwards all the rural areas were covered.

Salient Features of the Act

- ◆ **Right to Work:** The Act gives the adult members of the rural household, who are willing to work do unskilled manual work, legal right to work, which is consistent with Article 41 of the Indian Constitution which directs the state to secure all the citizens 'right to work'.
- ◆ **Time Bound Employment Guarantee:** The Act provides for 15 day time period for providing employment to an applicant, if the applicant is not provided with a job, he is entitled to unemployment allowance.
- ◆ **Guaranteed Minimum 100 days of wage employment in a fiscal year, per household.**

- ◆ **Decentralized Planning:** Gram Sabhas are the main actors in this initiative. They are given powers to recommend works and 50% of the works recommended by gram sabhas are executed. The planning, implementation and monitoring is done by the Panchayati Raj Institutions (PRIs).
- ◆ **Worksite Facilities:** The worksites (where the employment is provided under this scheme) has various facilities such as crèche, drinking water, shades and first aid kits.
- ◆ **Women Empowerment:** At least one third of the total members employed must be women.
- ◆ **Transparency and Accountability:** The accounts involved are audited on a monthly basis to ensure transparency and the grievance redressal mechanisms have been employed.
- ◆ **Labour Intensive Works:** Wage-material ratio for the MGNREGA district level in 60:40.
- ◆ **Implementation:** The state government is responsible for the effective implementation of this scheme. Section 3 and 4 of this act creates an obligation on the state government to provide a minimum of 100 days of guaranteed unskilled manual work to the rural household in a fiscal year.
- ◆ **Funding:** 100% of the wages of the unskilled manual work and 75% of the material costs including the wages of semi-skilled and skilled labourers are borne by the central government. 25% of the wages of the semi-skilled and skilled labourers and 100% unemployment allowance is borne by the state government.
- ◆ **Coverage:** The scheme covers 648 districts (out of total 712 districts in India). Remaining 64 districts are not covered as these districts are totally urban.

Initiatives to make MGNREGA more Effective

Project LIFE-MGNREGA

Pursuant to the objective of MGNREGA to build sustainable livelihood for the rural households, the government has formulated a project linking the flagship rural job scheme with skill development programmes. A Project for Livelihoods in Full Employment under MGNREGA (Project LIFE- MGNREGA) has been launched. The project aims at promoting self-reliance and improving the skill-base of the MGNREGA workers, and thereby improving livelihoods of MGNREGA workers, so that they can move from the current partial employment to full employment status and thereby reduce their dependence on MGNREGS.

GeoMGNREGA

It is a path breaking initiative that uses space technology for geo-tagging all assets created under MGNREGA for improved planning, effective monitoring, enhanced visibility and greater transparency. The initiative was implemented in financial year (FY) 2016-17, and so far, more than 1 crore assets have been geotagged and made available in the public domain.

Direct Benefit Transfer

To streamline the fund flow mechanism and bring down delay in payment of wages, the Ministry of Rural Development has implemented National Electronic Fund Management System (NeFMS) in 24 States and 1 Union Territory. This process reduces the delay in allocation of funds for payment of wages to the states and removes parking of funds at various levels. As per NREGASoft, around 99% of the wages are being paid electronically (FY 2018-19 as on 24.07.2018) into the Bank/Post Office accounts of MGNREGA workers through Electronic Fund Management System (eFMS). In FY 2013-14, only 37% of the wages were paid electronically.

In Depth Analysis of the Scheme

How providing employment of 100 days of unskilled manual work would alleviate the present situation of the rural household is a question which must be looked into. But before analysing the MNREGS, we need to understand what poverty means and what does development of the rural household mean.

Poverty can be defined as a situation where it forms a vicious circle of various factors like low income, poor health, low calorie consumption, lack of education, lack of skills, employment and job opportunities (not an exhaustive list). World Bank has defined poverty as “pronounced deprivation in well-being” and also it has emphasised that poverty has many other different aspects such as “low income, limited access to education and health care, voicelessness, powerlessness, vulnerability, and exposure to risk” which determine poverty.

Development of the rural household may mean differently for different persons, for some it might be development in terms of financial status, for some it might be development in terms of access to amenities such as health care, education etc. Development of the rural household for the purposes of this article would mean development in terms of income, access to education, health care, job opportunities, access to basic amenities like clean water, shelter, sufficient and nutritious food.

The MNREGA initiative has completed ten years and it's the twelfth year in running now. The reach of this initiative has been growing every year since its inception and it has provided nearly 90 crore rural household with job cards since 2006 and out of those 90 crore household

nearly 35% have demanded for employment and almost 98% of those who demanded for employment has been provided with one. From the year 2006-07 till 2014-15, on an average 40 crore households have been provided with employment, averaging around 4.5 crores households getting a job per annum, which is near to 30% of the rural household population in the country.

It is very evident from the available data that the reach of the MNREGA programme has been tremendous covering nearly 35% of the rural household every year. But another issue which is to be looked into is, how many person days of employment has been generated on an average to the 35% of the rural household who has been provided with the employment. The number of days of employment each household gets is very disappointing. On an average, as per the data available till now, each rural household gets around only 40-55 days of work in contrast to the 100 days of guaranteed employment which has been provided in the statute. The present number is nearly just half of what the statute guarantees.

The mandate under the MNREGA is only to provide at least 100 days of guaranteed employment per household (which is rarely achieved), hence the MNREGA initiative guarantees only partial employment and households should depend on alternative employments in different fields like agriculture sector or any other sector or casual labour work.

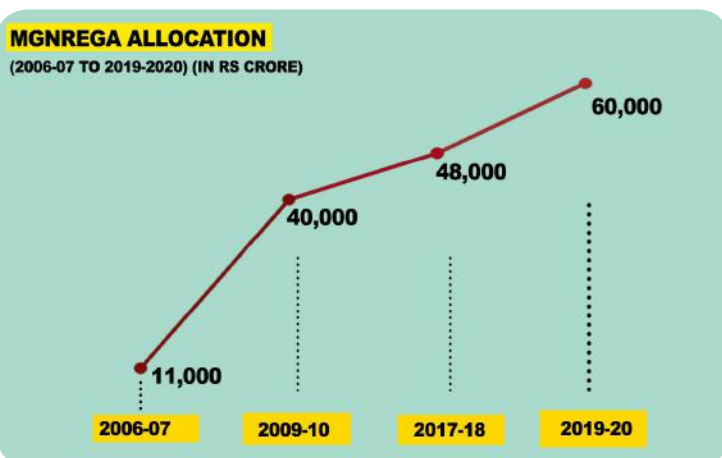
The wage rates under the MNREGA ranges from Rs. 80 per day to Rs. 150 per day, on an

average the wage rate provided under the MNREGA is Rs. 100. In many states, the wage rate which was provided under the MNREGA programme was less than the minimum stipulated wage in the Minimum Wages Act, 1948. But however, though the wages provided under MNREGA was lower than the Minimum Wages Act, it was more than the prevailing wage rate which was given for the unskilled labour in agriculture and other activities.

A sample survey by Agriculture Development and Rural Transformation Centre, revealed that the MNREGA was successful in increasing their annual income by providing guaranteed wage employment to rural households. More than 60% of the households participating in the survey admitted that the wages from the MNREGA initiative has contributed to their annual income from the range of Rs.5000 – Rs.10000 and nearly 8% of the household reported an increase of more than Rs.10000 in their annual income of the family. Nearly 98% of the household accepted that the wages earned by them through the MNREGA scheme has been beneficial to them and it has provided them additional support. Most of MNREGA work is directed towards building irrigation canals, tanks etc. thus provides resources base for further rural development.

According to Economics, it is well known that spending has multiplier effects and when the additional income which the household gets is spent on buying goods, there is a demand created for many items and the production of those commodities will create demand for supply of raw materials and labour.

The survey recorded the information regarding the wage utilization among the rural household with additional money they got through MNREGA. It was found that the majority of the household opted for a better food basket after the



increase in their income, the second most prioritised was education of their children and health. It is evident from the findings of the survey that the money is being used for improving the quality of the life and human development related issues, which is a positive sign for a better society and betterment of the people.

The MNREGS programme also provides an incentive of additional bargaining power for rural households to demand for better wages in the open market. Women opting in to the MNREGA programme is also another positive impact, where it provides women with their own economic independence and freedom and empowering them. Further, the MNREGA does not discriminate between a man and a woman in terms of wages, the wages of both man and woman are same, and this also provided a boost in confidence for women. With vast coverage of the MNREGA programme, it has become a lifeline for rural women. It has resulted into social upliftment for all sections including SC/ST. The percentage of Scheduled Caste workers benefitted under the scheme has consistently been about 20% and of Scheduled Tribe workers has been about 17%. The legislation has also reduced distress migration in traditionally migration-intensive areas.

Suggestions for Improving MGNREGA

The main objective of the act is to provide for at least 100 days of employment and not up to 100 days and the state governments and local authorities have failed to achieve the objective of the act. Only around 4 crores of the households out of the 40 crore household who had been provided with the employment, have completed the 100 days of employment. If the state governments take adequate measures to ensure

that the 100 days of guaranteed employment is provided to the rural household, it will lead to additional income to the rural household, which will bear a positive impact on their development.

New provision for providing free lunch for the workers at the worksite must be included into the legislation, doing this will enhance the food security of the rural household and it will save the additional cost which was incurred for their lunch, therefore leading to additional income at their disposal, and increased purchasing power.

The government should focus on simplification and strengthening of procedures for the effective implementation of MGNREGA. Lessons can be learnt from betterly governed states, from creating improved financial management systems to using technology-enabled banking solutions like smart cards, social audits and building grievance redressal systems. The focus should be on evaluating these experiments and drawing lessons to improve administration in the poorly governed states.

Corruption should be dealt harshly, but cutting funds to development programmes is definitely not a plausible solution. Corruption can be fought through the use of IT and community-based accountability mechanisms like social audits.

It should have an intensified focus on marginalised communities in the most backward blocks and on skill development of households that have completed 100 days (about 8% of the total). In addition, the act can be linked with the Socio-Economic Caste Census to ensure better targeting.

Conclusion

The MNREGA programme has enabled the rural household to increase their purchasing power, leading to a quality

and healthy life with minimum basic facilities and provide education to their children and several other benefits. The MNREGA has enabled the rural household by the additional income to go an extra mile and spend for a better quality of life. But this development is limited, MNREGA has not developed the rural households completely.

It's the opportune time to plug the loopholes of MGNREGA like insufficient budget allocation, poor wages rate, delay in wage payments, non-payment of unemployment allowance, partial compensation for delayed payment, distortion in labour market, fabrication of job cards, payments to fictitious workers, infrequent social audits, ineffective grievance redressal, insufficient involvement of Panchayati Raj institutions, large number of incomplete work and poor quality of assets created.

We also need to recognize the fact that it is not possible for MNREGA individually to develop the rural household completely. This complete development can only happen when the central and state governments introduce policies and initiatives which will cause growth and development of the rural household. We need to converge the outcomes of Swachh Bharat Mission, Ujjawala Yojna, Rural Electrification Program and other development policies to ensure a holistic development of rural India.

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.



3. EVM-STYLE VOTING: ABANDONMENT VS ACKNOWLEDGMENT

Why in News?

The Election Commission of India rejected a US-based cyber expert's claims of poll rigging and Electronic Voting Machine (EVM) tampering—and rightly so. But India's poll regulator could have gone the extra mile in dispelling the misconceptions of some people in the world's largest democracy.

Introduction

Elections in India are conducted almost exclusively using electronic voting machines developed over the past two decades by a pair of government-owned companies. These devices, known in India as Electronic Voting Machines or EVMs, is a simple electronic device used to record votes in place of ballot papers and boxes which were used earlier in conventional voting system. Fundamental right to vote or simply voting in elections forms the basis of democracy. Before the introduction of EVMs, all elections, be it state elections or general elections, a voter used to cast his/her favorite candidate by putting the stamp against his/her name and then folding the ballot paper as per a prescribed method before putting it in the Ballot Box. This is a long, time-consuming process and very much prone to errors. This situation continued till election scene was completely changed by electronic voting machine. No more ballot paper, ballot boxes, stamping, etc. is required. All this condensed into a simple box called ballot unit of the electronic voting machine.

India's Election Commission, which has a stellar record in holding impartial elections, has become a target of malicious political attacks. EVMs have been praised for their simple design, ease of use, and reliability, but recently

they have also been criticized following widespread reports of election irregularities. While allegations of EVM tampering are clearly unfounded, a step like tallying Voter Verifiable Paper Audit Trail (VVPAT) slips can once and for all put a lid to even an iota of doubt in the mind of the voter.

Background

As far as EVMs are concerned, they were introduced in 1998 amid much controversy. All political parties have opposed the use of EVMs at one point or another. In 2017, the Election Commission, to save itself from repeated controversies and furore, had thrown an open challenge to anyone who believed that they could hack the EVMs. Surprisingly, even the people who strongly opposed EVMs did not attend. Needless to say, such controversies are raised to reap political gain. Therefore, it's only legitimate and natural to expect that the Election Commission should make its rules and regulations more transparent. So far, it is a practice to match Voter Verifiable Paper Audit Trail (VVPAT) slips of one randomly selected EVM in each assembly constituency. In the recently-held assembly elections in five states, this count was found to be accurate. However, various political parties are demanding the matching of 10-50% of the EVMs.

About the EVM and VVPAT

Electronic Voting Machine (also known as EVM) is voting using electronic means to either aid or take care of the chores of casting and counting votes. It is designed with two units: the control unit and the balloting unit. These units are joined together by a cable.

Fortunately, the implementation of the VVPAT as a device has rendered it possible to verify if at all such

EVM Challenge- 2017

- Election Commission of India organized an EVM Challenge on 3rd June 2017.
- All National and State Political Parties were invited to participate in the Challenge.
- Parties allowed to pick EVMs/VVPATs of their choice from the 5 poll-gone States (UP, Punjab, UK, Goa, Manipur), which were securely held in the Strongrooms under 24*7 armed security.
- Parties given opportunity to demonstrate EVM manipulation/tampering in the votes recorded in the EVMs/VVPATs of their choice, as variously alleged earlier.
- No Political Party participated in the Challenge.
- Only 2 parties i.e. NCP & CPI-M reported to venue, only to Understand the EVM Process Better and were given detailed briefing of the same.
- The credibility and integrity of ECI-EVMs has always remained perfectly intact and unscathed.

schemes have happened to subvert the mandate of voters. Thus, VVPATs will in finding any malicious act that has gone on by comparing machine tallies with the hand-counted tally of the slips. Currently, the ECI allows for the votes recorded in the VVPAT to be counted in only one randomly chosen polling booth in each Assembly segment.

Election Commission: Checks and Balances on EVM

The ECI has reassured many times that the simplicity of the architecture of the EVM (software written onto a one-time programmable chip; standalone machines that are not networked; the lack of any frequency receiver or wireless decoder that will allow for communication externally; and advancements in newly deployed machines that allow for self-diagnostics to render the machines tamper-proof among other things) has helped it evade

some of the misgivings experienced by EVMs used in other countries.

Present Status

- ◆ In the light of technical security features and administrative safeguards, Commission has full confidence on its EVM system.
- ◆ Commission committed to deploy 100% VVPATs with EVMs in all elections as per commitment given to Hon'ble Supreme Court.
- ◆ 95% of approx.40 lakh units (BU, CU, VVPAT) already produced at a cost of Rs. 5626 cr for deployment in Lok Sabha-2019.

Why Going Back to Ballot not a Solution?

- ◆ It will be retrograde step in the era of technology when all transactions are done with technology.
- ◆ On an average, around 2000 votes was invalidated in each Constituency when ballots were used.
- ◆ Vote rigging was relative easier with Ballot papers. Muscle power may be used to rule.
- ◆ Counting of Ballot Papers was always prone to errors.

Combining this with administrative safeguards that allow for rigorous checks at various levels, such as after

manufacture, during deployment, and so on; randomisation of deployment of machines, a listing of candidates in alphabetical order rather than on party basis on ballot units; sealing of machines by political party representatives after polling and storing in high security "strong-rooms", the ECI has asserted that all these have made tampering impossible.

With these safeguards in place, it would require "insider mischief" by officials of the ECI, or by employees of the EVM manufacturers (Bharat Electronics Limited and the Electronics Corporation of India Limited) or the introduction of Trojans (malicious software) at the chip burning stage (a process currently outsourced to overseas firms) and which remain undetected by the manufacturers during their "first level checks" of the firmware, to create problems.

Country using EVMs (DRMs)

Currently, in the USA, the Direct Recording Machines are used in 27 states, among which paper audit trails are used in 15 states. The other voting methods include: Optical Scan Paper Ballot Systems, Ballot Marking Devices, and the Punch Card Ballot. Other countries using EVM include Namibia, Nepal, Armenia, Bangladesh,

Bhutan, Australia, Belgium, Bulgaria, Italy, Switzerland, Canada, Mexico, Argentina, Brazil, Chile, Peru and Venezuela.

Country Banned the using EVMs

There is worldwide acceptance of the need for a paper trail in conjunction with EVMs. Electronic voting was introduced in many countries. But serious doubts were soon raised about the security, accuracy, reliability and verifiability of electronic elections. In October 2006, the Netherlands banned the use of EVMs. In 2009, the Republic of Ireland declared a moratorium on their use. Italy has followed suit. In March 2009, the Supreme Court of Germany ruled that voting through EVMs was unconstitutional, holding that transparency is a constitutional right but efficiency is not a constitutionally protected value.

Way Forward

Using EVMs in India may or may not have seemed like a good idea when the machines were introduced in the 1980s, but scientific understanding of electronic voting security—and of attacks against it—has progressed dramatically since then, and other technologically advanced countries

ECI EVM	Foreign EVM
Standalone	Mostly networked
Manufactured in Premium PSUs	Manufactured entirely by private entities
Verified and certified by an independent Technical Experts Committee	No such robust and independent certification/ checks
Data is stored internally and not transferrable by any device	Voting data recorded in the DRM is transferred by means of CD, etc
Full end to end security protocol and administrative safeguards for the use, storage, transportation and tracking	No such protocols, e.g. in Ireland
Administrative and physical security as per legal framework across the country.	No such legal framework, e.g. in Netherlands

have adopted and then abandoned EVM-style voting. Now that we better understand what technology can and cannot do, any new solutions to the very real problems election officials face must address the problems, not merely hide them from sight.

The duties of the ECI as set out in Article 324 of the Constitution include ensuring that elections conducted by it are free and fair, and reflect the will of the voters. India should carefully reconsider how to achieve a secure and transparent voting system that

is suitable to its national values and requirements. One option that has been adopted in other countries is to use a voter-verifiable paper audit trail (VVPAT) along with EVMs. In addition to it, ECI should ensure that 50% of the EVM results were matched and cross-checked with VVPATs before it declared the final result of elections. The best possible way of improving upon our electoral process and bringing in greater trust in it is in a continuing and constructive critique of India's EVM through a scrutiny of the

election process including technical assessments of the devices used.

General Studies Paper- II

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

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4. INDUS WATER TREATY: MOST GENEROUS WATER SHARING PACT

Why in News?

Pakistan's Indus Commissioner Syed Mohammad Mehar Ali Shah and Indian Indus Commissioner Pradeep Kumar Saxena along with their respective advisers under took tour in Chenab basin of Jammu and Kashmir. This tour is an obligation imposed on both the countries by the 'Indus Waters Treaty' (IWC) 1960 between India and Pakistan. The Permanent Indus Commission, formed under the treat, comprises the Indus commissioners of the two countries. The treaty provides for meeting of the commissioners at least once every year, alternately in India and Pakistan.

Introduction

Water is a fundamental human need and a critical national asset. It is the key to socio-economic development and quality of life. As the pressures of population and economic activities converge on water requirement, the water sector will increasingly face the challenge of bridging the demand-supply gap. India is facing a serious water resource problem and as trends suggest, it is expected to become 'water stressed country' by 2025 and 'water scarce country' by 2050.

Irrigation from Indus waters has provided the basis for successful agriculture since time immemorial. At the partition of British India in 1947, the international boundary between India and what was then West Pakistan cut the irrigation system of the Bari Doab and the Sutlej Valley Project—originally designed as one scheme—into two parts. The headwork fell to India while the canals ran through Pakistan. That led to a disruption in the water supply in some parts of Pakistan. The dispute that thus arose and continued for some years was resolved through the mediation of the World Bank by a treaty between Pakistan and India (1960) known as the Indus Waters Treaty.

Numerous disputes were peacefully settled over the years through the Permanent Indus Commission. In a significant challenge to the treaty, in 2017 India completed the building of the Kishanganga dam in Kashmir and continued work on the Ratle hydroelectric power station on the Chenab River despite Pakistan's objections and amid ongoing negotiations with the World Bank over whether the designs of those projects violated the terms of the treaty.

Indus Waters Treaty

'Indus Waters Treaty', was signed in 1960, between India and Pakistan and brokered by the World Bank. The treaty fixed and delimited the rights and obligations of both countries concerning the use of the waters of the Indus River system. Despite several wars and crises between India and Pakistan, the treaty has been hailed as a shining example of cooperation between two states on water-sharing. India never stopped the flow of water to Pakistan even during the height of India-Pakistan wars. This treaty is the only agreement between the two countries that has withstood four wars, Pakistan-sponsored terrorism in Jammu and Kashmir and other parts of India, and the military crisis of 2002. Across the world, the treaty is cited as one of the few successful settlements of a trans-boundary water basin conflict.

India and Pakistan share six rivers of the Indus basin, grouped into two categories – the Western Rivers (the Indus, Chenab and Jhelum) and the Eastern Rivers (Sutlej, Ravi and Beas). Under the 'Indus Water Treaty', India has complete right to the use of the waters of the Eastern Rivers while

Pakistan has the right to use the waters of the Western Rivers. The Treaty is extraordinarily generous to Pakistan. Of the total water carried in the six rivers, 80 per cent flows through the Western Rivers and only 20 per cent through the Eastern Rivers. Thus, Pakistan gets over 4/5th of the Indus basin water.

The Treaty and its annexures are detailed technical documents which contain the restrictions on the usage of the waters. For instance, Pakistan can use the waters of the Western Rivers but India can also use them for irrigation purposes. India is also allowed to build run-of-the-river dams on the Western Rivers. The treaty also permits India to store 3.5 million acre feet of water.

The treaty also provided for the funding and building of dams, link canals, barrages and tube wells—notably the Tarbela Dam on the Indus River and the Mangla Dam on the Jhelum River. These helped in providing water to Pakistan in the amounts that it had previously received from the rivers now assigned to India's exclusive use.

The treaty sets out a mechanism for cooperation and information exchange between the two countries regarding their use of the rivers, known as the Permanent Indus Commission, which has a commissioner from each country. The commission was established in order to maintain a channel for communication and to try to resolve questions about implementation of the treaty. In addition, a mechanism for resolving disputes was provided. It sets forth distinct procedures to handle issues which may arise: "questions" are handled by the Commission; "differences" are to be resolved by a Neutral Expert; and "disputes" are to be referred to a seven-member arbitral tribunal called the "Court of Arbitration." As a signatory to the Treaty, the World Bank's role is limited and procedural. In particular, its role in relation to "differences" and "disputes" is limited to the designation of people

to fulfill certain roles when requested by either or both of the parties.

Irrigation Projects

Rivers, a crucial source of water resources, physically link upstream and downstream users.

In India

In India a number of dams, barrages and link canals have been built to distribute water from the Eastern Indus tributaries to the Punjab and neighbouring states. The Harike Barrage, at the confluence of the Beas and Sutlej, channels water into the Indira Gandhi Canal, which runs for about 400 miles (640 km) to the Southwest to irrigate some 1.5 million acres (607,000 hectares) of desert in Western Rajasthan. The main canal was completed in 1987.

In Pakistan

Following promulgation of the 1960 treaty, the Pakistan Water and Power Development Authority built several linking canals and barrages to divert water from its Western Rivers to areas in the East which were lacking water. The biggest of those canals is the Chashma-Jhelum link joining the Indus River with the Jhelum River, with a discharge capacity of some 21,700 cubic feet (615 cubic metres) per second.

The Indus Waters Treaty also made provision for the construction of several major dams in Pakistan, such as Mangla Dam, Tarbela Dam on Indus, among others. The Mangla Dam on the Jhelum River near the town of Jhelum is one of the largest rolled Earth-fill dams in the world.

IWT and Climate Change

The 'Indus Waters Treaty' is outdated and does not take into consideration the changing environment due to climate change. Climate change was not a prevalent topic during the time that the Indus Waters Treaty was enacted. However, the changing conditions of the rivers warrant a re-negotiation of the treaty. The area of the Indus River Basin totals 1.12 million km² and is shared among 300 million people of Afghanistan, India, Pakistan and China. Glacial melt from the Western Himalayas contribute to more than 40% of the annual water flow within the Basin. However, predictions are that glaciers will retreat for the next 50 years increasing the flow of the rivers.

The depletion of the glacial reserves will be followed by a 30-40% decrease in water flow of the River Indus, the main river of the Indus Basin tributaries. Scientists predict that climate change will also considerably affect the average rainfall in the upcoming years, leading to harsher droughts or larger floods. For example, Pakistan is predicted to see a decrease in number of rainy days but an increase in extreme precipitation events. One of the most devastating effects of climate change is that it can reduce access to freshwater and lead to conflict. In this context, the treaty should be modified to reflect climate change because the reduction in the availability of water causes a domino effect in all sectors of life.

India-Pakistan-Tensions Over the IWT

The IWT has enabled a peaceful sharing of the Indus waters by both India and Pakistan for 58 years.

But rocky political relations seep into the water treaty as well, and after the 2016 Uri cross-border attack, PM had said, "Blood and water cannot flow simultaneously." After the attacks, India decided to fast-track water projects that focused on capturing the unutilised water.

- ◆ The latest tension point in the treaty is about India's hydroelectric projects along the Chenab River. Pakistan asserts that this violates the IWT and will adversely impact their water supply. So far, disputes over water sharing, after the treaty was ratified, have been settled through legal procedures (explained within the framework of the treaty). So despite tensions, IWT remains secure.
- ◆ The Indian Indus river basin flows through Gujarat, but the IWT does not include the state. This was because when the IWT was made in 1960, the Great Rann of

Kutch area was disputed territory between the two nations. This was later settled in 1968 by sharing the total disputed area in a 9:1 ratio between India and Pakistan.

- ♦ The Left Bank Outfall Drain (LBOD) project, constructed by Pakistan (with the help of the World Bank) between 1987 and 1997 passes by the Rann of Kutch area. Its aim was to bypass saline and polluted water but has instead caused flooding and contamination in India. The canal overflowed in 2003 and 2011 and has been put on hold for improvements.

Currently, India is aggressively ensuring that it meets all the treaty provisions for arresting unutilised water.

India's Current challenges

Pakistan has often used the provisions of the treaty to raise objections to the projects proposed by the Indian side. The treaty has been used by Pakistan to obstruct and delay the projects allowed under the treaty on the Western Rivers. The latest example is that of the Baglihar Dam constructed by India on

the river Chenab and commissioned in 2008. Pakistan objected to the design of the dam holding that it was contrary to the provisions of the treaty.

Pakistan's propaganda must be responded to. The fact is that the Indus Water Treaty is generous to a fault to Pakistan. It is unlikely that if the Indus Water Treaty were to be negotiated, Pakistan would get a better deal than what it got in 1960. With water becoming a critical issue in India's relations with Pakistan and also with China, India has to evolve a well considered strategy aimed at securing its national interest and at the same time minimizing the potential for conflict with neighbours.

Way Forward

The hydrological contours of India, both as an upper riparian and a lower riparian, will be at the epicenter of new riparian politics and diplomacy over transboundary rivers. The friction in bilateral relations will increase if mutually acceptable bilateral or multilateral framework for cooperation to deal with integrated development of water resources is not effectively

reworked. In such situations, many of the existing treaties will have to be evaluated afresh and many treaties need to be framed based on new hydrological knowledge. India's riparian relation with its neighbours will become progressively fragile with Pakistan, Bangladesh and Nepal continuously raising concerns over regulating and sharing of river waters.

With a history of protracted rivalry, the Indus Waters Treaty is a rare example of compromise and cooperation between India and Pakistan. The treaty shows how international mediation can be instrumental in reaching an agreement between the two countries which have strained relations with each other. With this in mind, India and Pakistan should use the treaty as a model to negotiate, cooperate and resolve other ongoing issues as well.

General Studies Paper- II

Topic: India and its neighborhood-relations.

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

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5. INDIA-SOUTH AFRICA TOWARDS DEEPER COOPERATION

Why in News?

South African President Cyril Ramaphosa, recently concluded his first state visit to India as the Chief Guest at India's 70th Republic Day celebrations. India and South Africa sealed three year strategic programme to further boost cooperation in number of key areas after talks between Prime Minister Narendra Modi and South African President Cyril Ramaphosa.

Introduction

India's relationship with South Africa is both fundamental and unique, dating back several centuries and is

anchored in common ideals, ideas, interests and icons – like Mahatma Gandhi and Nelson Mandela. However, their bilateral relationship remained strained for a long time due to South African government's apartheid policy. Following its independence, India intensified its struggle against apartheid at multilateral organisations like United Nations (UN), Commonwealth and Non Aligned Movement (NAM) and was the first country to sever trade relations in 1946, and subsequently imposed political and economic sanctions on South Africa. The African National Congress (ANC) maintained a

representative office in New Delhi from the 1960s onwards. After a gap of four decades, India re-established trade and business ties in 1993, after South Africa ended its institutionalised racial segregation.

A partnership between India and South Africa, both advanced developing countries and emerging market economies, seeks to fulfil larger goals of political freedom, economic development and social justice, not just of the two countries but of their respective regions. Against the background of India's consistent support to the anti-apartheid struggle,

there has been a steady consolidation of our close and friendly ties with South Africa, bilaterally and through Brazil, Russia, India, China and South Africa (BRICS), India, Brazil and South Africa (IBSA) and other fora. A number of bilateral agreements have been concluded between the two countries since the assumption of diplomatic relations in 1993 in diverse areas ranging from economic and commercial cooperation, defence, culture, health, human settlements, public administration, science and technology and education. India's Technical and Economic Cooperation Programme (ITEC) has been a useful medium of promoting cooperation in development of human resources in the African Region.

India's and South Africa

India and South Africa's shared common experiences and collective strength have shaped the worldview of both these countries. As two nations who have shared their struggle to freedom, the responsibility to improve the lives of others is embedded within India and South Africa's consciousness.

India has had fairly flourishing commercial relations with South Africa since the establishment of diplomatic relations in 1993. In March 1997, during the visit of President Mandela to India, the two countries signed the historic Red Fort Declaration for Strategic Partnership between India and South Africa. This Strategic Partnership between the two countries was again re-affirmed in the Tshwane Declaration (October 2006). Both these declarations have been instrumental in the past to both South Africa and India for achieving their respective national objectives.

Bilateral Trade and Investments

India is South Africa's fifth-largest export destination, and fourth-largest

import destination and is the second-largest trading partner in Asia. Both countries are working to boost trade volumes in the coming years. Bilateral trade between India and South Africa currently stands at \$10 billion. In 2016, both countries set a target of doubling bilateral trade and investment to \$20 billion by 2021.

A recent joint study by Confederation of Indian Industries (CII) and Price Waterhouse Cooper (PwC) published in May, 2018, suggested that around 140 Indian companies have invested close to \$4 billion in South Africa, thereby creating direct employment for over 18,000 people. The leading Indian companies are Wipro, Coal India, Cipla, HCL Technologies, Tata Motors, Zomato, Mahindra and Mahindra, Vedanta, and Mother's Sumi. South African companies which have invested in India are SASOL, FirstRand, Old Mutual, ACSA, Shoprite and Nandos.

The Asia-Africa Growth Corridor is an ambitious plan by Japan and India to pool their resources — financial, technical, local knowledge and goodwill — to expand opportunities for African nationals while extending the soft power of both India and Japan.

Partnership in Multilateral Fora's

India and South Africa have a long history of working together by coordinating their views and efforts in institutions of global governance/multilateral fora's, in order to achieve greater autonomy and ensure that the agenda of 'South' is prioritised.

Global Governance

Both India and South Africa expressed concern at the slow pace of United Nations (UN) reforms and reiterated the importance of

international institutions reflecting the reality of the contemporary international system and taking into account the developmental agenda of the South. Both countries agreed that an urgent need exists to ensure that United Nations Security Council (UNSC) reforms are addressed as a matter of priority. Other contemporary and global issues including, international efforts on counter-terrorism as well as the reform of international financial systems are also agreeable between these two countries.

India and South Africa has signed the Paris Agreement on Climate Change on 22nd April 2016. Both countries are committed to take appropriate measure to address climate change, in particular to strengthen adaptation and resilience capacities and to promote increased use of renewable energy. Both countries are on the same page on the need for the provision of greater international support for developing countries to realise these efforts.

International Terrorism

Both sides agreed that terrorism constitutes a serious threat to international peace and stability and that no country is immune to the threat that terrorism represents. It was noted that more should be done to address the issue of terrorism and that counter-terrorism efforts should support a comprehensive, multifaceted and integrated approach. In this regard both leaders noted the need for concerted action by the global community against terrorism through early agreement and adoption of the UN Comprehensive Convention on International Terrorism, as well as the implementation of the United Nations Global Counter-Terrorism Strategy in a balanced and integrated manner.

BRICS (Brazil, Russia, India, China and South Africa)

In 2010, the formerly known grouping of BRIC, became BRICS with the induction of South Africa. The BRICS Forum's valuable contribution in reforming the global financial and economic architecture is well-appreciated by both India and South Africa. During the sixth BRICS summit in Fortaleza in 2014, a decision was taken to establish the New Development Bank (NDB) which aims to mobilise resources for development project in BRICS, emerging economies, and developing countries. BRICS leadership in creating alternative institutions like the NDB is indeed noteworthy. Although the NDB is not envisaged as rivals to the International Monetary Fund and World Bank, but as an additional resource mobilising mechanism, the political message is clear. Both India and South Africa remains committed to work together to enhance intra-BRICS trade, investment, and financial cooperation. On July 26, 2018 during 10th BRICS Summit, the MoUs signed between India and South Africa were;

- ◆ Memorandum of Understanding between the Indian Council of Agricultural Research, New Delhi, India and the Agricultural Research Council, Pretoria, South Africa on Cooperation on Agricultural Research and Education.
- ◆ Memorandum of Understanding between Government of Republic of South Africa and Government of India regarding the Setting up of the "Gandhi Mandela Centre of Specialisation in Artisan Skills" in South Africa.
- ◆ Memorandum of Understanding between Indian Space Research Organisation and the South African National Space Agency on Cooperation in the Exploration and

uses of Outer Space for Peaceful Purposes.

IBSA (India, Brazil, and South Africa)

Established in 2003, the IBSA Dialogue Forum brings together three large democracies and major economies from three different continent's facing similar developmental challenges, and represents three developing, pluralistic, multicultural, multiethnic, multilingual, and multi-religious nations. India and South Africa appreciates the work carried out by the IBSA Facility for Poverty and Hunger Alleviation (IBSA Fund), established in March 2004, and became operational in 2006, in sharing experiences, expertise, and capacities with developing countries in a South-South Cooperation framework.

G20

Both India and South Africa recognises G20 as the premier forum for coordination in international financial and economic matters, and calls upon the world-community to utilise monetary, fiscal, and structural reforms to jump-start the global economy. During his meeting with former President Zuma in 2016, PM Modi agreed on India's continued support for the South African proposals on the illicit financial flows, the Antimicrobial Resistance (AMR) and for the industrialization of Africa and Least Developed Countries (LDCs) as well as the G20 Action Plan on the implementation of the 2030 Sustainable Development Agenda.

World Trade Organisation (WTO)

India and South Africa supports WTO as the sole-multilateral mechanism on global trade, commerce, and in the centrality accorded to the development-agenda in the Doha Development Round. On July 12,

ITEC

The Indian Technical and Economic Cooperation (ITEC) Programme was instituted by the government of India on 15 September 1964 as a bilateral assistance programme. The ITEC programme has contributed to improving skills and enhancing knowledge of nearly 1000 South African nationals since 1993-94, in areas such as Rural Development, Agriculture, Information and Communication Technology, Poverty Alleviation, Mass Communication, Journalism, Entrepreneurship and other multi-skill development training aimed at increasing competitiveness in the job market.

The ITEC Programme, fully funded by the Government of India, has evolved and grown over the years. In the Financial Year 2017-18, under ITEC, 80 slots have allocated to South Africa, out of which, 17 slots have utilized so far. As a result of different activities under this programme, there is now a visible and growing awareness among other countries about the competence of India as a provider of technical know-how and expertise as well as training opportunities, consultancy services and feasibility studies. These programmes have generated immense goodwill and substantive cooperation among the developing countries.

The ITEC Programme has the following components :

- Training (civilian and defence) in India of nominees from ITEC partner countries;
- Projects and project related activities such as feasibility studies and consultancy services;
- Deputation of Indian experts abroad;
- Study Tours;
- Gifts/Donations of equipment at the request of ITEC partner countries; and
- Aid for Disaster Relief.

2018, India and South Africa made a joint proposal at the WTO, which said "the realities prevailing in the 1998, when WTO members agreed for the first time to the temporary moratorium on customs duties on electronic transmissions, have changed significantly during the subsequent two decades." Their main contention is that the present moratorium can lead to loss of competitiveness among developing countries, since they have

higher tariffs on physical products, while the same product in digital form attracts zero duty. This joint India-South Africa report took due note of attempts by the developed world to make commitments more comprehensive and stringent through negotiations on regional trade agreements and multilateral agreements.

Indian Diaspora in South Africa

South Africa is home to the highest number of Indian Diaspora in the African continent, with a total strength of 1,218,000 thereby constituting 3 percent of South Africa's total population. Since 2003 onwards, India celebrates Pravasi Bhartiya Divas (PBD) each year on 9th January (the day Mahatma Gandhi returned from South

Africa to India). Various mini-PBDs are also held regionally. The fourth in the series called 'PBD-Africa' was held in Durban, South Africa, on October 2010. This event also marked the 150th anniversary of the arrival of Indian in South Africa.

Way Forward

India has historic ties with several countries of the African continent, such as the nearly 1.5 million people of Indian origin in South Africa, which would provide India with an opportunity to make build strong relationship with there countries. Their problems and aspirations put India and a variety of African countries on the same side of multinational attempts to tackle global challenges such as climate change, keeping trade open

and avoiding big power domination. India and South Africa give these efforts an institutional framework through forums such as the G20, the Indian Ocean Rim Association, BRICS and IBSA. Robust maritime security in the Indian Ocean is not of just bilateral significance, but significant for whole Indo-Pacific region. India-South Africa partnership is progressive and forward looking. Our rich culture and people-to-people contacts lends character and quality to India-South Africa ties.

General Studies Paper- II

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



6. EL NINO IN THE 21ST CENTURY

Why in News?

The most recent projection of global warming impact on El Nino appeared in the scientific journal 'Nature' in December 2018. As per study, the theatre of action for El Nino is the tropical Pacific Ocean but its global reach costs the global community tens of billions of dollars each time. This also impacts projections of future climate since El Ninos redistribute the heat gathered by the ocean between two El Nino events to cause a mini global warming.

Introduction

El Nino is the largest climate phenomenon that occurs frequently, producing droughts, floods, wildfires, dust and snow storms, fish kill, and even elevated risks of civil conflicts. The theatre of action for El Nino is the tropical Pacific Ocean but its global reach costs the global community tens of billions of dollars each time.

El Ninos occur every two-to-seven years, with very strong El Nino's occurring about every 15 years. How the frequency, time and strength between two events will change because of global warming remains a grand challenge for climate models.

A recent research paper published in the journal Climate Dynamics says El Nino (Southern Oscillation) (ENSO's) relationship with Indian Summer Monsoon (ISM) has shifted towards the West African Summer Monsoon (WASM). This shift is part of a multi decadal cycle, which weakens ENSO's relationship with ISM while strengthening its relationship with the WASM and vice versa.

For example, between 1911 and 1930 while the influence of ENSO on ISM was weak, the influence of ENSO on WASM was strong. And, between 1931 and 1980 these influences reversed in character. Then they flipped again between 1981 and 2015. The reason

behind this see-saw relationship is a shift in one half of ENSO's temperature gradient (cooling part) from the North West of the Indian Monsoon region to the Northern part of West Africa.

During 1901-2015, the ISM recorded 22 droughts, of which nine were associated with El Nino and of the 18 floods recorded in that period, nine were associated with La Nina. On the other hand, for WASM, out of 21 droughts, nine were associated with El Nino, while of the 22 floods, seven were caused by La Nina, implying that 45 per cent of the ISM and 39 per cent of the WASM rainfall extremes are associated with ENSO.

El Nino/Southern Oscillation (ENSO)

ENSO is one of the most important climate phenomena on Earth due to its ability to change the global atmospheric circulation, which in turn, influences temperature and precipitation across

the globe. These changes in the Pacific Ocean and its overlying atmosphere occur in a cycle known as the El Nino–Southern Oscillation (ENSO). The atmosphere and ocean interact, reinforcing each other and creating a 'feedback loop' which amplifies small changes in the state of the ocean into an ENSO event. When it is clear that the ocean and atmosphere are fully coupled an ENSO event is considered established.

Though ENSO is a single climate phenomenon, it has three states, or phases, it can be in. The two opposite phases, "El Nino" and "La Nina," require certain changes in both the ocean and the atmosphere because ENSO is a coupled climate phenomenon. "Neutral" is in the middle of the continuum.

The Neutral Phase

In the neutral state (neither El Nino nor La Nina) trade winds blow East to West across the surface of the tropical Pacific Ocean, bringing warm moist air and warmer surface waters towards the Western Pacific and keeping the Central Pacific Ocean relatively cool. The thermocline is deeper in the West than the East.

Warm sea surface temperatures in the Western Pacific pump heat and moisture into the atmosphere above. In a process known as atmospheric convection, this warm air rises high into the atmosphere and, if the air is moist enough, causes towering cumulonimbus clouds and rain. This now-drier air then travels East before descending over the cooler Eastern tropical Pacific. The pattern of air rising in the West and falling in the East with Westward moving air at the surface is referred to as the 'Walker Circulation'.

El Nino

During an El Nino event, trade winds weaken or may even reverse, allowing the area of warmer than

normal water to move into the Central and Eastern tropical Pacific Ocean.

These warmer than normal ocean temperatures are associated with a deepening of the thermocline in the Central to Eastern Pacific. A weaker upwelling of cooler ocean waters from below also contributes to warmer sea surface temperatures.

Sea surface temperatures around Northern Australia are cooler than normal and the focus of convection migrates away from Australia Eastward towards the Central tropical Pacific Ocean. This results in increased rainfall for nations such as Kiribati and Peru, but less rainfall over Australia. The greatest impacts are usually felt over inland Eastern Australia, while effects for regions such as Southwest Western Australia and coastal New South Wales can vary from event to event, and in Western Tasmania the effects are generally weak.

La Nina

During a La Nina event, the Walker Circulation intensifies with greater convection over the Western Pacific and stronger trade winds.

As the trade winds strengthen, the pool of warmer water is confined to the far Western tropical Pacific, resulting in warmer than usual sea surface temperatures in the region north of Australia. Sea surface temperatures across the Central and Eastern tropical Pacific Ocean become cooler than usual and the thermocline moves closer to the surface – cool waters from the deep ocean are drawn to the surface as upwelling strengthens.

Convection and hence cloudiness over the region north of Australia increases as stronger winds provide more moisture to the overlying atmosphere and the Walker Circulation intensifies. This strengthens the Australian monsoon and, if the conditions are right, directs increased humidity and rainfall inland over

Australia. La Nina events are associated with increased rainfall over much of Northern and Eastern Australia. Parts of Northern and Central Australia tend to feel the impacts of La Nina more than they feel the impacts of El Nino.

The Indian Ocean Dipole (IOD)

The Indian Ocean Dipole (IOD) is defined by the difference in sea surface temperature between two areas (or poles, hence a dipole) – a Western pole in the Arabian Sea (Western Indian Ocean) and an Eastern pole in the Eastern Indian Ocean South of Indonesia. The IOD affects the climate of Australia and other countries that surround the Indian Ocean Basin and is a significant contributor to rainfall variability in this region. Like ENSO, the change in temperature gradients across the Indian Ocean results in changes in the preferred regions of rising and descending moisture and air.

In scientific terms, the IOD is a coupled ocean and atmosphere phenomenon, similar to ENSO but in the equatorial Indian Ocean. It is thought that the IOD has a link with ENSO events through an extension of the Walker Circulation to the West and associated Indonesian throughflow (the flow of warm tropical ocean water from the Pacific into the Indian Ocean). Hence, positive IOD events are often associated with El Nino and negative events with La Nina. When the IOD and ENSO are in phase the impacts of El Nino and La Nina events are often most extreme over Australia, while when they are out of phase the impacts of El Nino and La Nina events can be diminished.

Positive Events

- ◆ Warmer sea surface temperatures in the Western Indian Ocean relative to the East.
- ◆ Easterly wind anomalies across the Indian Ocean and less cloudiness to Australia's Northwest.

- ◆ Less rainfall over Southern Australia and the Top End.

Negative events

- ◆ Cooler sea surface temperatures in the Western Indian Ocean relative to the East.
- ◆ Winds become more westerly, bringing increased cloudiness to Australia's Northwest.
- ◆ More rainfall in the Top End and Southern Australia.

El Nino, La Nina and the Indian sub-continent

The two important meteorological events as far as Indian sub continent is concerned are monsoons (Southwest monsoon and Northeast monsoon) and cyclones, which generally form during the pre-monsoon (March-May) and the post-monsoon season (October–December). And the two important phenomena which influence the Indian Ocean are the El Nino and Southern Oscillation (popularly known as ENSO) and the recently discovered Indian Ocean Dipole that refers to the difference in temperatures between the surface waters in the West and East of the ocean.

Impact of El-Nino on India

In the 135 years between 1880 and 2014, around 90 per cent of all evolving El Nino years have seen below normal rainfall and 65 per cent of them experienced droughts. In fact, six of the worst droughts in the country since 1871 have been triggered by El Nino—the most recent being in 2009.

Droughts over India are closely tied with El Nino and any projections of how droughts will respond to global warming will depend on how models perform in their historic depiction of El Ninos as well as monsoons and how reliably they can project El Nino response to global warming in addition to how the models perform in reproducing floods and droughts of 20th century.

Diminishing Role of Monsoons in India

Though, the El-Nino conditions usually coincide with a period of weak monsoon and rising temperatures in India, its negative effect has been steadily declining, due to a number of mitigating factors.

Declining Share of Agriculture:

As per the Reserve Bank of India (RBI) data, the share of Agriculture and a percentage of Gross Domestic Product (GDP) stood at 29.9% in 1989-90, which has subsequently come down to 13.9% in 2013-14.

Increased Contribution of Rabi

Crops: The share of Kharif crops in total agricultural production has dropped from 66% in 1950s to 48% while the share of Rabi crops has risen proportionately. Sowing of Rabi crops (sown in winter and harvested in the spring) is not directly affected by the monsoon.

Rising Area under Irrigation:

As per the land use statistics 2014-15, the total irrigated area for major crops in India has increased from 22.6 mn hectares in 1950-51 to 68.4 mn hectares in 2014-15.

Reducing Risks, Capturing Opportunities

- ◆ Indian subcontinent is at high level of exposure and vulnerability to extreme climate events, the compounding effect of El Nino phenomenon will add further burden to their national and local capacity to manage risk and disasters. .
- ◆ Strong risk-informed national planning efforts, budgeting for preparedness across sectors, coordinating local and national efforts, and strengthening early warning systems are prerequisite for preparedness phase.
- ◆ Coordination at the national, regional and local levels and use

of information and communication technology are instrumental in an effective response. Political will at the highest level is also considered key to the success of these efforts.

- ◆ Government priority must be to reduce the impact of the El Nino phenomenon by implementing the 'Sendai Framework for Disaster Risk Reduction 2015-2030' and the 'Paris Agreement on Climate Change' in a coherent and integrated manner.
- ◆ The importance of risk management was also underscored in the 2030 Agenda for Sustainable Development which calls for the development and implementation of a holistic disaster risk management at all levels. Risk reduction and resilience building efforts should also be part of the World Humanitarian Summit considerations and the New Urban Agenda of the Habitat III Conference.
- ◆ Food insecurity, malnutrition and hunger remain a concern. We must put in place early warning and early action systems for the agricultural sector, to reduce its vulnerability to the El Nino phenomenon. In addition, we need to establish social protection schemes and build capacity of national governments to mitigate and be prepared for future El Ninos.

Government Initiatives

- ◆ The Central Water Commission is making a constant endeavour to update and modernize forecasting services on a continuous basis to make flood forecasts more accurate, effective and timely.
- ◆ The Pradhan Mantri Fasal Bima Yojna (PMFBY) in a move aimed at reducing agricultural distress and farmer's welfare without having to affect hefty hikes in the Minimum

Support Prices (MSP) of agricultural products prices due to monsoon fluctuations induced risks.

- Under 'Monsoon Mission', India Meteorological Department (IMD) is endeavored to develop new models for statewide forecast. At present, the weather agency predict regional dissemination which merely gives broad picture. In 2018, IMD unveiled new weather prediction system for more accurate forecasts and probability assessment of severe weather.
- The country's first Flood Forecasting and Early Warning System (FFEWS) was inaugurated in Kolkata to help people of the city to be better prepared in case of heavy rain and flood. The system includes weather forecasts, flood models for various intensities of rainfall, inundation levels, actual rainfall and a messaging system to provide warnings and real-time information to city officials and citizens.
- The institutional and policy mechanism for carrying out response, relief and rehabilitation has been well-established since independence. These mechanisms have proved to be robust and effective.

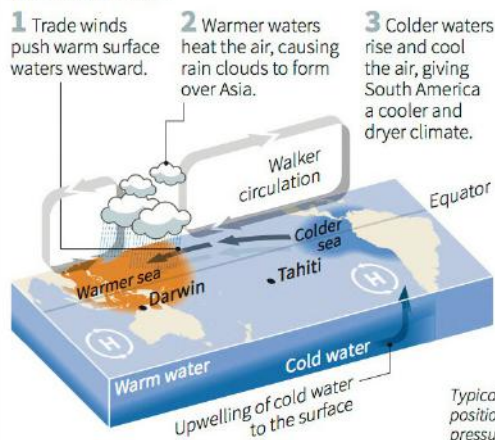
Future Impact of El Nino in the 21st Century

- Unfortunately, available data is not sufficient to say with confidence how the tropical Pacific has responded to global warming till now.
- It is unclear if the impact of global warming on El Nino can easily be extracted considering its intrinsic tendencies and the fact that it

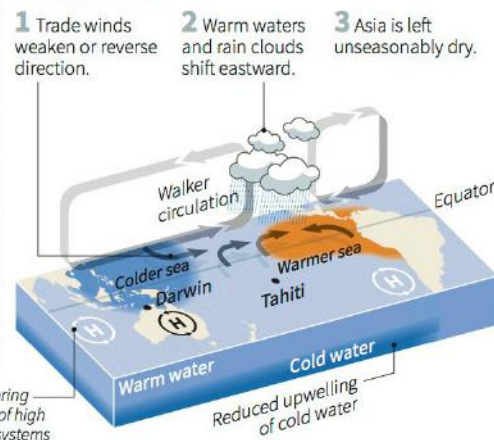
How El Nino affects weather

El Nino is a warming of tropical Pacific waters that affects wind circulation patterns, recurring every three to eight years. Its effect on global climate varies from one event to the next.

NORMAL YEAR



EL NINO YEAR



depends on so many factors that are not easily predictable.

- All available evidence for El Nino behaviour during the Holocene or the Last Glacial Maximum indicates that El Nino is highly variable and its variability depends on weather noise over the Western Pacific, volcanoes, impact of phytoplankton on penetration of solar radiation into the ocean, aerosols and so on.
- The latest projection posits that strong El Ninos and extreme weather events associated with them will increase in the coming decades.
- Some models warm the Eastern tropical Pacific more than the West while others produce a faster warming in the West. Whether the East warms faster or the West has serious consequences for global warming itself since the cold Eastern Pacific soaks up a lot of heating from the atmosphere. A slower warming of the East would imply more heat uptake by the ocean and a slower global warming.

Way Forward

Challenges to the forecasting of ENSO arise from our lack of a complete

understanding of how global warming, especially the rather monotonic warming of the Indian Ocean and what this may mean for the monsoon and the monsoon-ENSO dance. There are indications that the Indian Ocean warming may be directly contributing to a reduction in the rainfall amounts during the monsoon. Previous research has shown that the Indian monsoon also tends to be weaker during the ice ages such as the one that concluded about 12000 years ago. It would be a cruel twist of fate if both ice ages and global warming can lead to a weaker monsoon and be the bearers of bad news for this region which believes so deeply in destiny. India has made a wise decision by investing in ENSO and monsoon research, including high-performance supercomputing since the future of the country cannot be left to the vagaries of the monsoon and ENSO.

General Studies Paper- III

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



7. NITROGEN POLLUTION IS SPREADING ITS GRIP

Why in News?

N Raghuram, chairman of International Nitrogen Initiative (INI) has talked about the United Kingdom's investment of £20 million (Rs 187.51 crore) for research on nitrogen pollution and its consequences for the South Asian region. The UK Government has announced its commitment to fund a major international research programme to tackle the challenge that nitrogen pollution poses for the environment, food security, human health and the economy in South Asia.

Introduction

Nitrogen is the dominant gas in the atmosphere, it is inert and doesn't react. However, when it is released as part of compounds from agriculture, sewage and biological waste, nitrogen is considered "reactive", and it may be polluting and even exert a potent greenhouse gas (heat trapping) effect. High doses of fertiliser input of nitrogen to agriculture combined with low nitrogen-use efficiency means that research on nitrogen pollution must be a priority for South Asia. This is emphasised by the scale of nitrogen subsidies across South Asia at around \$10 billion per year. Better nitrogen management will have huge economic and environmental benefits.

So far, we have focussed on carbon dioxide and its impact on global warming. Nitrous oxide (N_2O) is 300 times more potent than carbon dioxide but isn't as prevalent in the atmosphere. In the future, reactive nitrogen pollution will be a matter of significant global discussion and, unlike carbon, India and South Asia cannot wake up at the last minute, realising that it has no updated, scientific assessment of its inventory.

Other than air pollution, nitrogen is also linked to the loss of biodiversity, the pollution of rivers and seas, ozone depletion, health, economy, and livelihoods. Nitrogen pollution is caused, for example, by emissions from chemical fertilisers, livestock manure and burning fossil fuels. Gases such as ammonia (NH_3) and nitrogen dioxide (NO_2) contribute to poor air quality and can aggravate respiratory and heart conditions, leading to millions of premature deaths across the world. Nitrate from chemical fertilisers, manure and industry pollutes the rivers and seas, posing a health risk for humans, fish, coral and plant life.

Last year, Dr. Raghuram led a consortium of researchers who assessed trends in nitrogen emissions in India, where NO_x emissions grew at 52% from 1991 to 2001 and 69% from 2001 to 2011. Though agriculture remained the largest contributor to nitrogen emissions, non-agricultural emissions of nitrogen oxides and nitrous oxide were growing rapidly, with sewage and fossil-fuel burning — for power, transport and industry — leading the trend.

Nitrogen Pollution and its Impacts

Nitrogen pollution comes in many forms, with multiple impacts - for humans, animals and plant life. Gases such as ammonia (NH_3) and nitrogen dioxide (NO_2) contribute to poor air quality and can aggravate respiratory and heart conditions, leading to millions of premature deaths across the world; while nitrous oxide (N_2O) is a greenhouse gas that depletes the ozone layer.

South Asian Nitrogen Hub

The South Asian Nitrogen Hub, a partnership led by the UK's Centre for Ecology & Hydrology and comprising around 50 organisations (including 18 research institutions from India) from across the UK and South Asia, will be established with funding from UK Research and Innovation (UKRI) under its Global Challenges Research Fund (GCRF).

The Hub will be awarded £19.6 million over the next five years, comprising £17.1 million from UKRI and £2.5m from UK and international partners, including the South Asia Cooperative Environment Programme (SACEP).

The Hub is one of 12 GCRF hubs being announced to address intractable challenges in sustainable development. The interdisciplinary hubs, will work across 85 countries with governments, international agencies, partners and NGOs, to develop creative and sustainable solutions that help make the world safer, healthier and more prosperous. The South Asian Nitrogen Hub will study the impacts of the different forms of pollution to form a coherent picture of the nitrogen cycle. In particular, it will look at nitrogen in agriculture in eight countries - India, Pakistan, Bangladesh, Nepal, Afghanistan, Sri Lanka, Bhutan and Maldives.

Nitrogen pollution presents significant barriers to achieving United Nations Sustainable Development Goals on: Zero Hunger, Climate Action, Good Health & Well-being, Clean Water & Sanitation, Affordable & Clean Energy, Life Below Water, Life on Land, No Poverty, Responsible Consumption & Production, and Decent Work & Economic Growth.

Some main environmental footprints of nitrogen includes:

Water Quality

- ◆ Too much Nitrogen causing coastal and freshwater dead zones, hypoxia, fish kills, algal blooms, nitrate contaminated aquifers and impure drinking water.

Air Quality

- ◆ Too much Nitrogen, increases human morbidity and mortality by exposure to particulate matter formed from NO_x and NH₃ emissions, together with increased concentrations of nitrogen dioxide (NO₂) and ground-level ozone (O₃), which is produced by reaction of nitrogen oxides (NO_x) with volatile organic compounds.

Greenhouse Gas Balance

- ◆ Too much Nitrogen, causing emissions of N₂O and other interactions with tropospheric O₃ and CH₄, particulate matter and alteration of CO₂ exchange due to atmospheric Nitrogen deposition. N₂O is now also the main cause of stratospheric ozone depletion, increasing the risk of skin cancer from UV-B radiation.

Ecosystems and Biodiversity

- ◆ Too much Nitrogen is causing the loss of species of high conservation value which are naturally adapted to few nutrients.

Soil Quality

- ◆ Too much atmospheric Nitrogen deposition acidifies natural and agricultural soils, while an inability to match crop harvests with sufficient nutrient return leads to depletion of nutrients and organic matter in agricultural soils, leading to land degradation and increasing the risk of erosion.

Adaptation and Mitigation

As a global society, we struggle with the intractable problems of air pollution, climate change and declining water quality, biodiversity and health.

However, better nitrogen management will provide solutions to all of them and offers a triple win - for the economy, health and environment. Suggested steps for:

Agriculture

- ◆ Improves nutrient use efficiency in crop production.
- ◆ Improve nutrient use efficiency in animal production.
- ◆ Increase the fertilizer equivalence value of animal manure.

Transport and Industry

- ◆ Development of low-emission combustion and energy-efficient systems, including renewable sources.
- ◆ Development of NO_x capture and utilization technology.

Waste and Recycling

- ◆ Improve nutrient efficiency in fertilizer and food supply and reducing food waste.
- ◆ Recycle nitrogen and phosphorus from waste water systems from cities, agriculture and industry.

Societal Consumption Patterns

- ◆ Energy and transport saving.
- ◆ Lowering personal consumption of animal protein among populations consuming high rates (avoiding excess and voluntary reduction).

Integration and Optimization

- ◆ Spatial and temporal optimization of nutrient flows.

Issues and Challenges in India

Commercial agriculture, animal husbandry, vehicles and industry release nitrogen in various forms into the soil, water and air. Usually, this is absorbed and recycled. But, intensification of these activities has disturbed the equilibrium in recent decades. We have already breached the 'planetary boundary' for nitrogen—the limits of the Earth within which humans can thrive. The planetary boundary of N (nitrogen) is set at 44 Tg (Tera-grams) per year globally. Current application of N, primarily through fertiliser usage, is about 150 Tg N per year, which is over three times greater than the planetary boundary and well outside of the uncertainty range.

SACEP

South Asia Co-operative Environment Programme (SACEP) is an inter-governmental organization, established in 1982 by the governments of South Asia to promote and support protection, management and enhancement of the environment in the region. SACEP also serves as the secretariat of South Asian Seas Programme (SASP).

SACEP, as an international organisation, has the responsibility to embrace Sustainable Development Goals (SDGs).

India had signed MoU with SACEP for cooperation on the response to Oil and Chemical Pollution in the South Asian Seas Region.

The Indian policy of nutrient-based subsidy for fertilizers is important in providing incentive to develop and adopt use-efficient and balanced fertilizers, including each of chemical, biological and organic fertilizer sources.

For India, the assessment found that based on a tentative selling price of US \$78.8 per tonne of nitrogen fertiliser, a cash subsidy of around US \$7 billion puts a heavy burden on the country's exchequer. The report calculates that India loses nitrogen worth US \$10 billion per year as fertiliser value, while the costs of N pollution on health ecosystems and climate are calculated at US\$ 75

GCRF

The Global Challenges Research Fund (GCRF) is part of the UK's official development assistance (ODA). GCRF was launched in 2016 and has a budgeted investment of £1.5 billion between 2016 and 2021 on collaborative research and innovation. Its aim is to support cutting-edge research and innovation that addresses the global issues affecting developing countries. It aims to reduce poverty by generating and putting into use knowledge and technology to address development challenges and advance development for the poorest people and countries.

Facts about Nitrogen in South Asia

- South Asia, home to a quarter of the world's population, is critical to the global nitrogen cycle. By 2050, its population of 1.8 billion is expected to rise by 20 per cent, while its use of fertilizers could double.
- Around 12 million tonnes of nitrogen are used in fertilizers across South Asia to support food production, but the efficiency is low, with around 80% wasted which contributes to multiple forms of nitrogen pollution.
- About 10 billion USD worth of nitrogen is lost as pollution in South Asia. In India alone, the total societal cost of nitrogen pollution on human health, ecosystems and climate is estimated at about 75 billion USD annually.
- Atmospheric nitrogen pollution stimulates growth of certain plants at the expense of more sensitive species with a high conservation value.
- There is a significant risk to global biodiversity hotspots such as the Himalayan foothills, especially as the Indo-Gangetic Plain (IGP) has the highest ammonia (NH₃) concentrations in the world, arising mainly from livestock excreta and urea fertilizer used in agriculture.
- Government subsidies of the fertilizer industry in South Asia are around 10 billion US dollars a year (including 7 billion USD in India).
- Indian Prime Minister Narendra Modi asked the country's farmers to cut urea fertilizer consumption by half by 2022.

billion per year. It also finds that a relative improvement in current rates of Nitrogen Use Efficiency (NUE) by 20 per cent would have net economic benefits of about US\$ 170 billion per year globally.

The growth in fertilizer use in the underuse areas can be offset by more efficient use in the overuse areas, including the recycling of nutrients lost from other sources. An enabling

policy framework that gives incentives for nutrient recovery and recycling is needed. Inadequacies in policies and their enforcement are also leading to losses of nutrients from intensive animal husbandry, aquaculture, poultry, etc.

In the automobile sector, the growth of private sector transport (especially diesel vehicles) is leading to the growing loss of N as NO_x. In Delhi, this trend is reversing major gains made over the last decade through the Compressed Natural Gas (CNG) policy, which has also improved public transport through metro trains and modernized buses. Other policy successes of India are in the nationwide implementation of Bharat stage VI emission norms, phasing out 2-stroke engines, enabling new technologies like electric vehicles, hybrid vehicles, etc.

In the energy sector, the growing combustion of fossil fuels to meet the energy needs of a growing economy has led to increasing formation and emission of Nitrogen as NO_x from thermal power plants, although their relative contribution compared to other sectors is currently still small. Technologies like low NO_x burners are being encouraged to limit NO_x emissions from such large point sources.

Thus, by making the right policy initiatives by emphasizing and incentivizing nutrient recovery and recycling, and by boosting their implementation, India could make significant reductions in overall nutrient losses, while improving Nitrogen Use Efficiency (NUE). Above all, this will require a determined initiative for monitoring and quantifying of major

nutrient sources, sinks and flows, as well as further identification of recycling options and best practices for informed policy interventions towards sustainable nutrient management.

Conclusion

Nitrogen is essential for producing food, but about half of the nitrogen used in the global agricultural sector — from fertilizer applied on fields to manure stored in lagoons — is either emitted to the atmosphere or washed off into local waterways. These losses stem from how farmers apply nitrogen and in what forms. Consequently, most nitrogen management policies are designed to give farmers incentives to change their behavior — for example, by developing nutrient management plans or using more environmentally friendly fertilizers that delay the release of nitrogen into soil.

Public debate about planetary health tends to focus on carbon. But nitrogen is also critically important as it is connected to air pollution, biodiversity loss, the pollution of rivers and seas, ozone depletion, health, economy and livelihoods. Nitrogen pollution is caused, for example, by emissions from chemical fertilizers, livestock manure, and burning fossil fuels. Previous efforts have addressed only specific aspects of the problem, while the Hub will bring these together in a more coherent approach.

General Studies Paper- III

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



SEVEN SUBJECTIVE QUESTIONS WITH MODEL ANSWERS

Universal Basic Income: Is a Panacea to India's Poor

Q1. What do you mean by 'Universal Basic Income' and 'Universal Basic Capital'? Discuss whether Universal basic income will be panacea for solving the fundamental problems of the Indian economy.

Hints:

- ◆ The idea of a universal basic income (UBI) is that the state should give to all citizens (or residents) a modest regular cash transfer, regardless of their job situation, social status, family position or other discriminating factors. The only limiting conditions, in most UBI models, are 1) residency/citizenship, 2) age of reason (adulthood), and 3) obedience to the laws of the country.
- ◆ In the Universal Basic Capital focus on three broad classes of assets: Private assets include money, land, and housing. Public assets refer to infrastructure and services like education, health and public utilities. Lastly, open assets are a growing category of mostly digital assets that are communally created and open to everyone, open education resources to scientific knowledge, artificial intelligence tools, and much more.
- ◆ India's GDP is growing quite well, though there are disputes about whether it grew faster under the present or previous governments. There can be no dispute though that India needs to do much better to improve overall human development. The benefits of India's economic growth must trickle down much faster to people at the bottom of the pyramid: to poorer farmers, landless rural labour, and hundreds of millions of workers living on the edge in low-paying, 'flexible' forms of employment with no social security.
- ◆ The beauty of a 'universal' basic income, its proponents say, is that it avoids messy political questions about who deserves assistance. It also side-steps the challenge of actually providing the services required: education, health, food, etc. Just give the people cash: let them buy what they need.
- ◆ A simplistic UBI will not solve the fundamental problems of the economy. A better solution to

structural inequality than UBI is universal basic capital, or UBC, which has begun to pop up in international policy circles. In this alternative approach, people own the wealth they generate as shareholders of their collective enterprises. Amul, SEWA, Grameen and others have shown a way.

- ◆ An unavoidable solution to fix India's fundamental problems is the strengthening of institutions of the state to deliver the services the state must (public safety, justice, and basic education and health), which should be available to all citizens regardless of their ability to pay for them. The institutions of the state must be strengthened also to regulate delivery of services by the private sector and ensure fair competition in the market. The building of state institutions, to deliver and to regulate, will require stronger management, administrative, and political capabilities and not better economists.

MGNREGA: Journey So Far

Q2. The recent Interim Budget 2019-2020 has allocated highest ever Rs. 60,000 Crore for MGNREGA. In this context critically analyze the success and failures of MGNREGA.

Hints:

- ◆ The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme has been allocated Rs. 60,000 crore in the Budget for 2019-20. It is less than what was spent on the scheme in the current year, that is, the revised estimate for 2018-19, which stands at Rs. 61,084 crore.
- ◆ This act gives the adult members of the rural family a legal right to demand for employment for at least 100 days in a year in public work projects, to every household whose adult members volunteer to do unskilled manual work.
- ◆ The MGNREGA initiative has completed ten years and it's the twelfth year in running now. The reach of this initiative has been growing every year since its inception and it has provided nearly 90 crore rural house hold with job cards since 2006 and out of those 90 crore household nearly 35% have demanded for

employment and almost 98% of those who demanded for employment has been provided with one.

- ◆ More than 60% of the households participating in the survey admitted that the wages from the MNREGA initiative has contributed to their annual income from the range of Rs.5000 – Rs.10000 and nearly 8% of the household reported an increase of more than Rs.10000 in their annual income of the family. Nearly 98% of the household accepted that the wages earned by them through the MNREGA scheme has been beneficial to them and it has provided them additional support to them.
- ◆ Corruption should be dealt harshly, but cutting funds to development programmes is definitely not a plausible solution. Corruption can be fought through the use of IT and community-based accountability mechanisms like social audits.
- ◆ It should have an intensified focus on marginalised communities in the most backward blocks and on skill development of households that have completed 100 days (about 8% of the total). In addition, the act can be linked with the Socio-Economic Caste Census to ensure better targeting.
- ◆ The MNREGA programme has enabled the rural household to increase their purchasing power, lead a quality and healthy life with all the basic facilities and provide education to their children and several other benefits. The MNREGA has enabled the rural household by the additional income to go an extra mile and spend for a better quality of life. But this development is limited, MNREGA has not developed the rural households completely.

EVM-Style Voting: Abandonment vs Acknowledgment

Q3. The issue of Electronic Voting Machines (EVMs) being tampered with in India has been raked up by several political parties. In this regard, discuss role of EVMs in ensuring free and fair elections in India.

Hints:

- ◆ The Election Commission of India rejected a US-based cyber expert's claims of poll rigging and Electronic Voting Machine (EVMs) tampering and rightly so. But India's poll regulator could have gone the extra mile in dispelling the misconceptions of some people in the world's largest democracy.
- ◆ As far as EVMs are concerned, they were introduced in 1998 amid much controversy. All political parties have opposed the use of EVMs at one point or another. In 2017, the Election Commission, to save itself from

repeated controversies and furore, had thrown an open challenge to anyone who believed that they could hack the EVMs.

- ◆ The ECI has reassured us many a time that the simplicity of the architecture of the EVM (software written onto a one-time programmable chip; standalone machines that are not networked; the lack of any frequency receiver or wireless decoder that will allow for communication externally; and advancements in newly deployed machines that allow for self-diagnostics to render the machines tamper-proof among other things) has helped it evade some of the misgivings experienced by EVMs used in other countries.
- ◆ Why going back to ballot not a solution?
 - ◆ It will retrograde step in the era of technology when all transactions are done with technology.
 - ◆ On an average around 2000 were invalidated votes in each Constituency when ballots were used.
 - ◆ Vote rigging was relative easier with ballot papers. Muscle power used to rule.
 - ◆ Counting of ballot Papers was always prone to errors.
- ◆ The duties of the ECI as set out in Article 324 of the Constitution include ensuring that elections conducted by it are free and fair, and reflect the will of the voters. India should carefully reconsider how to achieve a secure and transparent voting system that is suitable to its national values and requirements.
- ◆ ECI should ensure that 50% of EVM results were matched and cross-checked with VVPATs before it declared the final result of elections. The best possible way of improving upon our electoral process and bringing in greater trust in it is in a continuing and constructive critique of India's EVM through a scrutiny of the election process including technical assessments of the devices used.

Indus Water Treaty: Most Generous Water Sharing Pact

Q4. 'India and Pakistan should use the treaty as a model to negotiate, cooperate and resolve other ongoing issues as well.' Comment.

Hints:

- ◆ India and Pakistan share six rivers of the Indus basin, grouped into two categories – the Western Rivers (the Indus, Chenab and Jhelum) and the Eastern Rivers (Sutlej, Ravi and Beas). Under the Indus Water Treaty, India has complete right to the use of the waters of

the Eastern Rivers while Pakistan has the right to use the waters of the Western Rivers. The treaty is extraordinarily generous to Pakistan. Of the total water carried in the six rivers, 80 per cent flows through the Western Rivers and only 20 per cent through the Eastern Rivers. Thus, Pakistan gets over 4/5th of the Indus basin water.

- ◆ The IWT has enabled a peaceful sharing of the Indus waters by both India and Pakistan for 56 years.
- ◆ But rocky political relations seep into the water treaty as well, and after the 2016 Uri cross-border attack, PM of India had said, "Blood and water cannot flow simultaneously." After the attacks, India decided to fast-track water projects that focused on capturing the unutilised water.
- ◆ The latest tension point in the treaty is about India's hydroelectric projects along the Chenab River. Pakistan asserts that this violates the IWT and will adversely impact their water supply. So far, disputes over water sharing, after the treaty was ratified, have been settled through legal procedures (explained within the framework of the treaty). So despite tensions, IWT remains secure.
- ◆ Pakistan has often used the provisions of the Treaty to raise objections to the projects proposed by the Indian side and permitted under the treaty. The treaty has been used by Pakistan to obstruct and delay the projects allowed under the treaty on the Western Rivers.
- ◆ With a history of protracted rivalry, the Indus Waters treaty is a rare example of compromise and cooperation between India and Pakistan. The treaty shows how international mediation can be instrumental in reaching an agreement between the two countries which have strained relations with each other. With this in mind, India and Pakistan should use the treaty as a model to negotiate, cooperate and resolve other ongoing issues as well.

India-South Africa towards Deeper Cooperation

Q5. India's relationship with South Africa is both fundamental and unique; dating back several centuries. Discuss how both countries can utilize multilateral fora's to achieve greater autonomy and ensure that the agenda of 'south' is prioritised.

Hints:

- ◆ South African President Cyril Ramaphosa, recently concluded his first state visit to India as the chief guest

at India's 70th Republic Day celebrations. India and South Africa sealed three year strategic programme to further boost cooperation in number of key areas after talks between Prime Minister Narendra Modi and South African President Cyril Ramaphosa.

- ◆ India's relationship with South Africa is both fundamental and unique, dating back several centuries and is anchored in common ideals, ideas, interests, and icons – like Mahatma Gandhi and Nelson Mandela.
- ◆ A partnership between India and South Africa, both advanced developing countries and emerging economies, seeks to fulfil larger goals of political freedom, economic development and social justice, not just of the two countries but of their respective regions. Against the background of India's consistent support to the anti-apartheid struggle, there has been a steady consolidation of our close and friendly ties with South Africa, bilaterally and through Brazil, Russia, India, China and South Africa (BRICS), India, Brazil and South Africa (IBSA) and other Fora.
- ◆ A number of bilateral agreements have been concluded between the two countries since the assumption of diplomatic relations in 1993 in diverse areas ranging from economic and commercial cooperation, defence, culture, health, human settlements, public administration, science and technology and education. India's Technical and Economic Cooperation Programme (ITEC) has been a useful medium of promoting cooperation in development of human resources.
- ◆ Both countries agreed that an urgent need exists to ensure that UNSC reforms are addressed as a matter of priority. Others contemporary and global issues including, international efforts on counter-terrorism as well as the reform of international financial systems.
- ◆ Both sides agreed that terrorism constitutes a serious threat to international peace and stability and that no country is immune to the threat that terrorism represents. In this regard both leaders noted the need for concerted action by the global community against terrorism through early agreement and adoption of the UN Comprehensive Convention on International Terrorism, as well as the implementation of the United Nations Global Counter-Terrorism Strategy in a balanced and integrated manner.
- ◆ India and South Africa give these efforts an institutional framework through forums such as the G20, the Indian Ocean Rim Association, BRICS and IBSA. Robust maritime security in the Indian Ocean is not of just bilateral significance. India-South Africa partnership is

progressive and forward looking. Our rich culture and people-to-people contacts lends character and quality to India-South Africa ties.

El Nino in the 21st Century

Q6. What do you understand by El-Nino phenomena? Analyse its implications on Indian sub-continent.

Hints:

- ◆ El Nino is the largest climate phenomenon that occurs frequently, producing droughts, floods, wildfires, dust and snow storms, fish kill and even elevated risks of civil conflicts. The theatre of action for El Nino is the tropical Pacific Ocean but its global reach costs the global community tens of billions of dollars each time. El Ninos occur every two-to-seven years, with very strong El Nino's occurring about every 15 years. This also impacts projections of future climate since El Ninos redistribute the heat gathered by the ocean between two El Nino events to cause a mini global warming.
- ◆ In the 135 years between 1880 and 2014, around 90 per cent of all evolving El Nino years have seen below normal rainfall and 65 per cent of them experienced droughts. In fact, six of the worst droughts in the country since 1871 have been triggered by El Nino—the most recent being in 2009. All the weather models around the world had predicted a high probability of an El Nino event towards the end of this year or the beginning of the next year. The East and North-east India and the Southern Peninsula have received 58 percent and 42 percent deficient rainfall respectively.
- ◆ Droughts over India are closely tied with El Nino and any projections of how droughts will respond to global warming will depend on how models perform in their historic depiction of El Ninos as well as monsoons and how reliably they can project El Nino response to global warming in addition to how the models perform in reproducing floods and droughts of 20th century.
- ◆ Diminishing role of monsoons in India
 - ◆ Though, the El-Nino conditions usually coincide with a period of weak monsoon and rising temperatures in India, its negative effect has been steadily declining, due to a number of mitigating factors.
 - ◆ Declining Share of Agriculture: As per the RBI data, the share of Agriculture and a percentage of GDP stood at 29.9% in 1989-90, which has subsequently come down to 13.9% in 2013-14.
 - ◆ Increased Contribution of Rabi Crops: The share of Kharif crops in total agricultural production has

dropped from 66% in 1950s to 48% while the share of Rabi crops has risen proportionately. Sowing of Rabi crops (sown in winter and harvested in the spring) is not directly affected by the monsoon.

- ◆ Rising Area under Irrigation: As per the land use statistics 2014-15, the total irrigated area for major crops in India has increased from 22.6 mn hectares in 1950-51 to 68.4 mn hectares in 2014-15.
- ◆ Challenges to the forecasting of ENSO arise from our lack of a complete understanding of how global warming, especially the rather monotonic warming of the Indian Ocean and what this may mean for the monsoon and the monsoon-ENSO dance. There are indications that the Indian Ocean warming may be directly contributing to a reduction in the rainfall amounts during the monsoon. Previous research has shown that the Indian monsoon also tends to be weaker during the ice ages such as the one that concluded about 12000 years ago. India has made a wise decision by investing in ENSO and monsoon research, including high-performance supercomputing since the future of the country cannot be left to the vagaries of the monsoon and ENSO.

Nitrogen Pollution is Spreading its Grip

Q7. What is 'nitrogen pollution'? Discuss the challenge that nitrogen pollution poses for the environment, human health and the economy in South Asia.

Hints:

- ◆ Nitrogen is the dominant gas in the atmosphere, it is inert and doesn't react. However, when it is released as part of compounds from agriculture, sewage and biological waste, nitrogen is considered "reactive" and it may be polluting and even exert a potent greenhouse gas (heat trapping) effect.
- ◆ Nitrogen pollution comes in many forms, with multiple impacts – for humans, animals and plant life. Gases such as ammonia (NH₃) and nitrogen dioxide (NO₂) contribute to poor air quality and can aggravate respiratory and heart conditions, leading to millions of premature deaths across the world; while nitrous oxide (N₂O) is a greenhouse gas that depletes the ozone layer. Nitrate from chemical fertilizers, manure and industry pollutes rivers and seas, posing a health risk for humans, fish, coral and plant life.
- ◆ Nitrogen pollution is also linked to the loss of biodiversity, the pollution of rivers and seas, ozone depletion, health, economy, and livelihoods. Nitrogen pollution is caused, for example, by emissions from chemical fertilisers, livestock manure and burning

fossil fuels. Gases such as ammonia (NH₃) and nitrogen dioxide (NO₂) contribute to poor air quality and can aggravate respiratory and heart conditions, leading to millions of premature deaths across the world. Nitrate from chemical fertilisers, manure and industry pollutes the rivers and seas, posing a health risk for humans, fish, coral and plant life.

- ◆ Nitrogen pollution presents significant barriers to achieving United Nations Sustainable Development Goals on: Zero Hunger, Climate Action, Good Health & Well-being, Clean Water & Sanitation, Affordable & Clean Energy, Life Below Water, Life on Land, No Poverty, Responsible Consumption & Production, and Decent Work & Economic Growth.
- ◆ Eighteen research institutions in India are among a group of 50 institutions — called the South Asian

Nitrogen Hub (SANH) — in the United Kingdom and South Asia that have secured fund from the U.K. government to assess and study the quantum and impact of “nitrogen pollution” in South Asia.

- ◆ The South Asian Nitrogen Hub will support progress towards meeting SDGs, address barriers to change, and demonstrate the economic benefits of tackling nitrogen pollution. The involvement of UN Environment, SACEP and South Asian governments will ensure that the outcomes are shared widely as a basis to accelerate uptake of the most promising solutions. However, better nitrogen management will provide solutions to all of them and offers a triple win - for the economy, health and environment. Joining up across the nitrogen cycle will catalyse change for a cleaner, healthier and more climate-resilient world.

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SEVEN IMPORTANT NATIONAL & INTERNATIONAL NEWS

NATIONAL

1. 70th Republic Day of India

India celebrated its 70th Republic Day on January 26. The overall theme for the Republic Day celebrations this year was the 150th birth anniversary of Mahatma Gandhi. The tableaux of many states were themed on the Father of the Nation. South African President Cyril Ramaphosa was the Chief Guest at the 70th Republic Day parade (RPD).

Highlights of RPD-2019

- ◆ Woman power was on dazzling display at the parade, with an all-women Assam Rifles contingent in the lead and a woman officer being part of the team performing bike stunts. Contingents of the Navy, Army Services Corps and a unit of Corps of Signals were led by women officers.
- ◆ Four Indian National Army (INA) veterans, all aged over 90 years, were participated in the parade for the first time. The other highlights

were the artillery gun system M777 American Ultra-Light Howitzers, the Main Battle Tank (MBT) T-90 and the Made-in-India Akash Weapon System.

- ◆ The Jallianwala Bagh massacre, which took place on Baisakhi day in 1919, was the theme of the Punjab tableau. It was the third time in a row that Punjab is participating in the Republic Day parade.
- ◆ 'Sankhnaad', a martial tune created for the Indian armed forces, was played for the first time on the 70th Republic Day parade. Since Independence, the Indian defence forces have been playing 'martial tune' created by the Britishers. 'Sankhnaad' is based on Indian classical music.
- ◆ For the first time in the Republic Day parade, IAF's AN-32 aircraft has flown using a mix of jet and biofuel. Using environment-friendly biofuel will help in reducing carbon

footprint as well as lessen the import bill.

Why 26 January is celebrated as Republic Day?

It is a little known fact that the date 26 January has a historical significance in India's freedom struggle as well. It was chosen as the date for the first Republic day as it was on this day back in 1930 that the Indian National Congress had declared 'full' independence (purna swaraj) as its demand, as opposed to the dominion status offered by the British regime. It was celebrated as 'purna swaraj' day for the next 17 years. When India did achieve independence, however, the date set by the British was 15 August.

Republic Day honours the date 26 January 1950, on which the Constitution of India came into effect, replacing the Government of India Act (1935) as the governing document of the country. ■

2. Pradhan Mantri Shram-Yogi Maandhan Yojana

Union Budget 2019 has proposed to launch a mega pension yojana namely 'Pradhan Mantri Shram-Yogi Maandhan' for the unorganised sector workers with monthly income upto Rs 15,000. Under the scheme, an assured monthly pension of Rs 3,000 per month will be provided to workers in the unorganised sector after 60 years of age. However, to avail of the scheme, workers will have to contribute Rs 100 month. The new pension scheme will

run alongside the existing Atal Pension Yojana, which guarantees returns post-retirement.

An unorganised sector worker joining pension yojana at the age of 29 years will have to contribute Rs 100 per month till the age of 60 years, while a worker joining the pension yojana at 18 years will have to contribute Rs 55 per month only. The government will deposit equal matching share in the

pension account of the worker every month.

Significance

It is expected that at least 10 crore labourers and workers in the unorganised sector will avail the benefit of 'Pradhan Mantri Shram-Yogi Maandhan' within next five years making it one of the largest pension schemes of the world. ■

3. 139 Polluted Cities not on Clean Air Plan: Report

According to the report of Greenpeace titled 'Airpocalypse III', over 130 highly polluted cities violating the national air quality standards have been left out of the recently launched National Clean Air Programme (NCAP). The report has analysed air pollution data of 313 cities and towns for the year 2017. It said that of the 313 cities, 241 are on the list of non-attainment cities (highly polluted cities), but the NCAP has included only 102.

The 102 cities, identified as hotspots of pollution, were asked to submit a plan for how they would address the problem. Broadly, the plans include increasing the number of monitoring stations, providing technology support, conducting

source apportionment studies, and strengthening enforcement.

Of these 313 cities, 241 (77%) had PM10 levels beyond the National Ambient Air Quality Standards (NAAQS). These specify upper limits to a range of airborne chemicals and compounds.

Of the 139 cities that have not been included in the non-attainment list under the NCAP, there are several cities that have a population of more than 1 million, and PM levels (recorded in 2017) above NAAQS.

Concern

The World Health Organisation's database on air pollution over the years

has listed Tier I and Tier II Indian cities as some of the most polluted places in the world. In 2018, 14 of the world's 15 most polluted cities were in India. A study in the journal Lancet ranked India as No.1 on premature mortality and deaths from air pollution.

About NCAP

The Ministry of Environment, Forests and Climate Change (MoEFCC) launched the five-year action plan in January 2019 to reduce particulate matter (PM) pollution by 20-30% in at least 102 cities by 2024, with 2017 as base year.

4. India's New Anti-radiation Missile

The Defence Research and Development Organisation (DRDO) has claimed to have conducted the maiden test of new generation anti-radiation missile (NGARM) from a fighter aircraft off Odisha coast. The indigenously developed air-to-surface missile was successfully launched from Indian Air Force's front-line aircraft Sukhoi-30 MKI. The missile is capable of destroying enemy radars, tracking systems and communication facilities.

Key Points

- ◆ NGARM, having a strike range of over 100 km, is the first air-to-surface missile completely designed and developed by DRDO.

- ◆ The state-of-the-art high speed missile is first-of-its-kind in the country's arsenal. It can be launched over a wide range of altitudes. Picking up signals or radiation emitted from the radars or tracking networks from a certain distance, the missile can destroy communication systems.

- ◆ Radars, tracking apparatuses and other communication facilities of enemies are the first targets during wars. A sensor on the tip of NGARM will pick up radio frequencies and destroy these facilities. The system will give a boost to the armed forces.

- ◆ The single-stage liquid-propelled system can use dual propulsion depending on the requirement. After completion of developmental trials, it will be integrated with front-line fighter

aircraft Sukhoi and multi-role light combat aircraft Tejas.

- ◆ The weapon boasts of a dual-seeker system comprising passive homing head (PHH) and milli metric wave seeker. The PHH is a wide bend receiver system for identification of radiation emitting sources.
- ◆ The NGARM can be launched from Sukhoi from different altitudes and velocities.

About ARM

The art that an anti-radiation missile (ARM) is adapted to home on radio frequency (RF) signals radiated so that an explosive charge carried by such a missile may destroy radar. To accomplish such homing, the guidance system in an ARM missile may be designed to lock onto the leading or trailing edge of radar interrogating pulses, as well as mid pulse samples of such pulses.



5. National Agricultural Higher Education Project

Indian Council of Agricultural Research (ICAR) has launched 'National Agricultural Higher Education Project' (NAHEP) to attract talent and strengthen higher agricultural education in the country. This project will be funded by the World Bank and the Indian government on a 50:50 basis. In addition, a four year degree in Agriculture, Horticulture, Fisheries and Forestry has been declared a professional degree.

Key Points

- ◆ In order to make agriculture education useful, the recommendations of the 5th Dean Committee have been implemented in all the Agricultural Universities under which amendment of agricultural degree courses has been done to include biotechnology, information technology, bio-informatics, remote sensing, organic farming, agriculture business management etc.
- ◆ Emphasis has been given on experiential learning, skill and entrepreneurship development. Along with this, four new programs, B.Tech (Biotechnology), B.Sc. Community Science, B.Sc. Food Nutrition and Dietetics and B.Sc. Sericulture have also been included.
- ◆ In order to promote the participation of students in agricultural business, Student READY (Rural Entrepreneurship Awareness Development Yojana) scheme is being run, under which practical experience of agriculture and entrepreneurship is provided to undergraduate students.
- ◆ A MoU has been signed between the Ministry of Agriculture and Farmers' Welfare and the Ministry of Skill Development and Entrepreneurship to promote skill development in the field of agriculture. Under this, skill development training programs are being organized regularly in Krishi Vigyan Kendras (KVKs) across the country. These training programs are based on agriculture and related topics.

6. Pradhan Mantri Kisan Samman Nidhi

Union Budget 2019 has proposed a new scheme namely 'Pradhan Mantri Kisan Samman Nidhi' to provide an assured income support to the small and marginal farmers. Under this programme, vulnerable landholding

farmer families, having cultivable land upto 2 hectares, will be provided direct income support at the rate of Rs. 6,000 per year. This income support will be transferred directly into the bank accounts of beneficiary farmers, in three equal instalments of Rs. 2,000 each. This programme will be funded by Government of India.

The programme would be made effective from 1st December 2018 and the first installment for the period upto 31st March 2019 would be paid during this year itself. This programme will entail an annual expenditure of Rs.75,000crore”.

Pradhan Mantri Kisan Samman Nidhi is

a modification of the Rythu Bandhu scheme of the Telangana government, which provides assistance on a per-acre basis (Rs 8,000 per acre per year) without any holding size limit. But, Telangana's Rythu Bandhu was preceded by an updating of land record that established land ownership. Given the abysmal state of land records in the country as a whole, whose rectification would take months at the very least, the idea of immediate payment under PM Kisan Scheme defies reason.

Significance

Around 12 crore small and marginal farmer families are expected to benefit from this. It would not only provide assured supplemental income to the most vulnerable farmer families, but would also meet their emergent needs especially before the harvest season. It would pave the way for the farmers to earn and live a respectable living.



7. Pravasi Teerth Darshan Yojana

Prime Minister Narendra Modi has launched the 'Pravasi Teerth Darshan Yojana' under which a group of Indian diaspora will be taken on a government sponsored tour of religious places in India twice a year.

- ◆ The first batch of 40 Indian origin people at the Pravasi Bharatiya Divas began their tour.
- ◆ They will be taken to religious places of all major religions in India and the government will bear all the expenses including the airfare from their country of residence.
- ◆ All people of Indian-origin aged 45 to 65 can apply and a group

will be selected out of them with first preference given to people from 'Girmitiya countries' such as Mauritius, Fiji, Suriname, Guyana, Trinidad and Tobago and Jamaica.

About Pravasi Bharatiya Diwas

The decision to celebrate Pravasi Bharatiya Diwas (PBD) was taken by the former Indian Prime Minister, late Shri Atal Bihari Vajpayee. The 1st PBD was celebrated on 9th January, 2003 in New Delhi. January 9 was chosen as the day to celebrate PBD as it was on this day in 1915 that Mahatma Gandhi, had returned to India from South Africa.

PBD now celebrated once in every two years, provides a platform to the overseas Indian community to engage with the government and reconnect with their roots. During the Convention, Pravasi Bharatiya Samman is conferred on the selected overseas Indians for their significant contributions to various fields both in India and abroad.

The 15th Pravasi Bharatiya Diwas was held at Varanasi, Uttar Pradesh from 21-23 January, 2019. The theme for this year was "Role of Indian Diaspora in building New India". ■

INTERNATIONAL

1. 3rd Stock Taking Conference on Tiger Conservation

The 3rd Stock Taking Conference on Tiger Conservation was inaugurated in New Delhi. Third in a series of Stock Taking Conferences, this is the second to be held in India after 2012 and is expected to have wide ranging discussions on the status of the Global Tiger Recovery Program (GTRP) by the 13 tiger range countries besides deliberations on combating wildlife trafficking. The conference was hosted by the National Tiger Conservation Authority, Ministry of Environment,

Forest and Climate Change in close collaboration with the Global Tiger Forum which is an International, Intergovernmental Organization for conserving tigers in the world.

Background

During the St. Petersburg declaration in 2010, tiger range countries had resolved to double tiger numbers across their range by 2022. At the time of deliberations at St. Petersburg, India's tiger estimate stood at 1411,

which after the third cycle of the All India Tiger Estimation, 2014 has nearly been doubled to 2226. This has largely been possible because of strides made against Key Performance Indicators (KPIs), predominant among them being legislation to ensure protection of tiger habitat and enhancement of penalties, besides providing a statutory basis for inviolate space. The fourth cycle of the All India Tiger Estimation, 2018 is currently under way. ■

2. Superbug Gene found in Arctic Region

In a significant find in the global spread of multi-drug resistant (MDR) bacteria, scientists have found a 'superbug' gene - first detected in New Delhi over a decade back - in one of the last 'pristine' places on Earth, the Arctic, which is some 12,870 km away.

Soil samples taken in Svalbard -- a Norwegian archipelago between mainland Norway and the North Pole -- have now confirmed the spread of blaNDM-1 (called New Delhi Metallo-beta-lactamase-1) into the High Arctic. The enzyme that makes bacteria drug-resistant got 'New Delhi' in its name because it was first detected in a

Swedish patient of Indian origin who travelled to India in 2008. Carried in the gut of animals and people, blaNDM-1 and other medically-important Antibiotic Resistant Genes (ARGs) were found in Arctic soils that were likely to spread in the faecal matter of birds, other wildlife and human visitors to the area.

About NDM-1 Drug

This Antibiotic Resistant Gene (ARG), originally found in Indian clinical settings, conditionally provides multi-drug resistance (MDR) in microorganisms. NDM-1 was first identified in New Delhi and coded by

the resistant gene blaNDM-1. This gene gave bacteria resistant to a class of antibiotics known as Carbapenems.

What are Superbugs?

Superbugs are strains of bacteria that are resistant to several types of antibiotics. Antibiotics are among the most commonly prescribed drugs for people. They're also given to livestock to prevent disease and promote growth. Unfortunately, many antibiotics prescribed to people and to animals are unnecessary. And the overuse and misuse of antibiotics helps to create drug-resistant bacteria. ■

3. Microplastic Fibres found in Groundwater

Scientists have found microplastics in two aquifer systems in the U.S. Microplastics are already known to contaminate the world's surface waters, yet scientists have only just begun to explore their presence in groundwater systems. Fractured limestone aquifers are a groundwater source that accounts for 25% of the global drinking water supply. Groundwater flows through the cracks and voids in limestone, sometimes

carrying sewage and runoff from roads, landfills and agricultural areas into the aquifers below.

Plastic in the environment breaks down into microscopic particles that can end up in the guts and gills of marine life, exposing the animals to chemicals in the plastic. As the plastics break down, they act like sponges that soak up contaminants and microbes and can ultimately work their way into our food supply. The researchers

identified a variety of household and personal health contaminants along with the microplastics, a hint that the fibres may have originated from household septic systems.

It is estimated that 6.3 billion metric tonnes of plastic waste have been produced since the 1940s, and 79% of that is now in landfills or the natural environment. ■

4. Africa Centre for Climate and Sustainable Development

Italian Prime Minister Giuseppe Conte has opened a new centre set up by the Italian government in partnership with the United Nations Development Programme (UNDP) and the Food and Agricultural Organisation (FAO) to fight climate change and boost sustainable development in Africa. The new centre is located near the headquarters of the Food and Agriculture Organisation (FAO) in central Rome.

Key Points

The Centre has its roots in a declaration endorsed by the G7 meeting of the Environment Ministers in 2017. It was established to facilitate coordination

among the G7 and African countries on common initiatives in Africa to achieve the goals set by the Paris Agreement and the 2030 Agenda. It will help develop and scale-up innovative solutions for sustainable development to end reliance on fossil fuels and cap global warming.

A major focus on boosting the agricultural sectors and promoting rural development in Africa was needed to ensure a better future for the continent's youth who can be the drivers of development.

FAO is helping many member states develop national plans to strengthen rural livelihoods and

inclusive governance schemes that benefit family farmers and will provide expertise on food security and sustainable and climate-resilient agriculture.

Background

Today, sub-Saharan Africa is the region with the highest prevalence of undernutrition - and farm yields are far below those obtained elsewhere. There are a host of reasons, such as infrastructure deficits and the lack of access to markets and credit. Conflict and climate change are also having a strong impact on vulnerable rural populations.

5. International Year of the Periodic Table

UNESCO has launched the 'International Year of the Periodic Table of Chemical Elements' (IYPT2019) to celebrate the 150th anniversary of the organisation of the periodic table. The IYPT2019 aims to recognize the importance of the Periodic Table of Chemical Elements as one of the most important and influential achievements in modern science reflecting the essence not only of chemistry, but also of physics, biology and other basic sciences disciplines. IYPT2019 will bring together a variety

of stakeholders around the world – including scientists, educational institutions, non-profits and private-sector supporters – to foster educational initiatives and scientific collaboration, improve access to science education and reflect on the role of science for society and sustainable development.

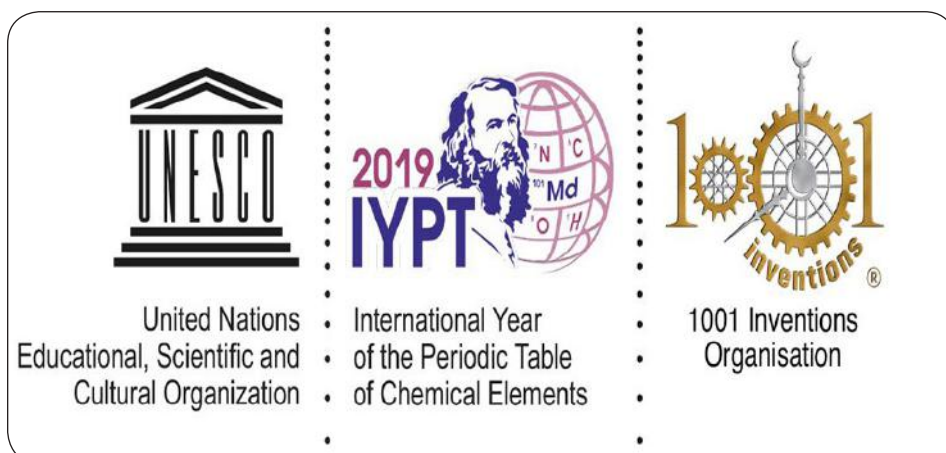
UNESCO also launched educational initiative, '1001 Inventions: Journeys from Alchemy to Chemistry'. 1001 Inventions has engaged with over 400 million

people across the globe working with a network of international partners, including UNESCO, National Geographic and leading academics to produce interactive exhibits, short films, live shows, books and classroom learning materials that are being used by hundreds of thousands of educators around the world.

Key Facts

Russian scientist Dmitry Mendeleev published the first periodic such table in 1869.

The International Union of Pure Applied Chemistry (IUPAC) is responsible for maintaining the periodic table. IUPAC is an international federation of National Adhering Organizations that represents chemists in individual countries. It is a member of the International Council for Science (ICSU). The headquarters of IUPAC is in Zürich, Switzerland.



6. UAE-Saudi Arabian Digital Currency - Aber

The United Arab Emirates (UAE) and Saudi Arabia have launched the interbank digital currency "Aber." It will be used in financial settlements between the two countries through Blockchains and Distributed Ledgers technologies.

Key Points

The digital currency would aid in studying the impact on the improvement and reduction of remittance costs and the assessments of risks.

It will also establish an additional means for the central financial transfer systems of the two countries and enable banks to directly deal with each other in conducting financial remittances.

The use of the currency will be restricted to a limited number of banks in each state. By studying the various technical, economic and legal requirements, the use of the digital currency would be expanded. Digital Currency Aber relies on the use of a distributed database between the central banks and the participating banks from both sides.

About Blockchain & Distributed Ledger Technology (DLT)

Blockchain is one type of a distributed ledger. Blockchain, which bundles transactions into blocks that are chained together, and then broadcasts them to the nodes in the network, is probably the best-known type of distributed ledger technology. It

powers bitcoin, the digital currency created in 2009. Bitcoin is also known as being a peer-to-peer network.

Distributed ledgers use independent computers (referred to as nodes) to record, share and synchronize transactions in their respective electronic ledgers (instead of keeping data centralized as in a traditional ledger).

DLT could fundamentally change the financial sector, making it more efficient, resilient and reliable. This computer architecture represents a significant revolution in record-keeping by changing how information is gathered and communicated.

7. Instrument in Support of Trade Exchanges

Three European countries – France, Germany, and the UK (officially shortened as E3) have officially announced the creation of Instrument in Support of Trade Exchanges (INSTEX), a special purpose vehicle (SPV) to allow them to bypass US sanctions on trade with Iran. It will receive the formal endorsement of all 28 EU members.

Key Points

- ◆ It is a payment mechanism that would allow European companies to trade with Iran.
- ◆ It will be based in Paris and will be managed by German banking expert Per Fischer. The UK will head the supervisory board.
- ◆ It will allow trade between the EU and Iran without relying on direct

financial transactions.

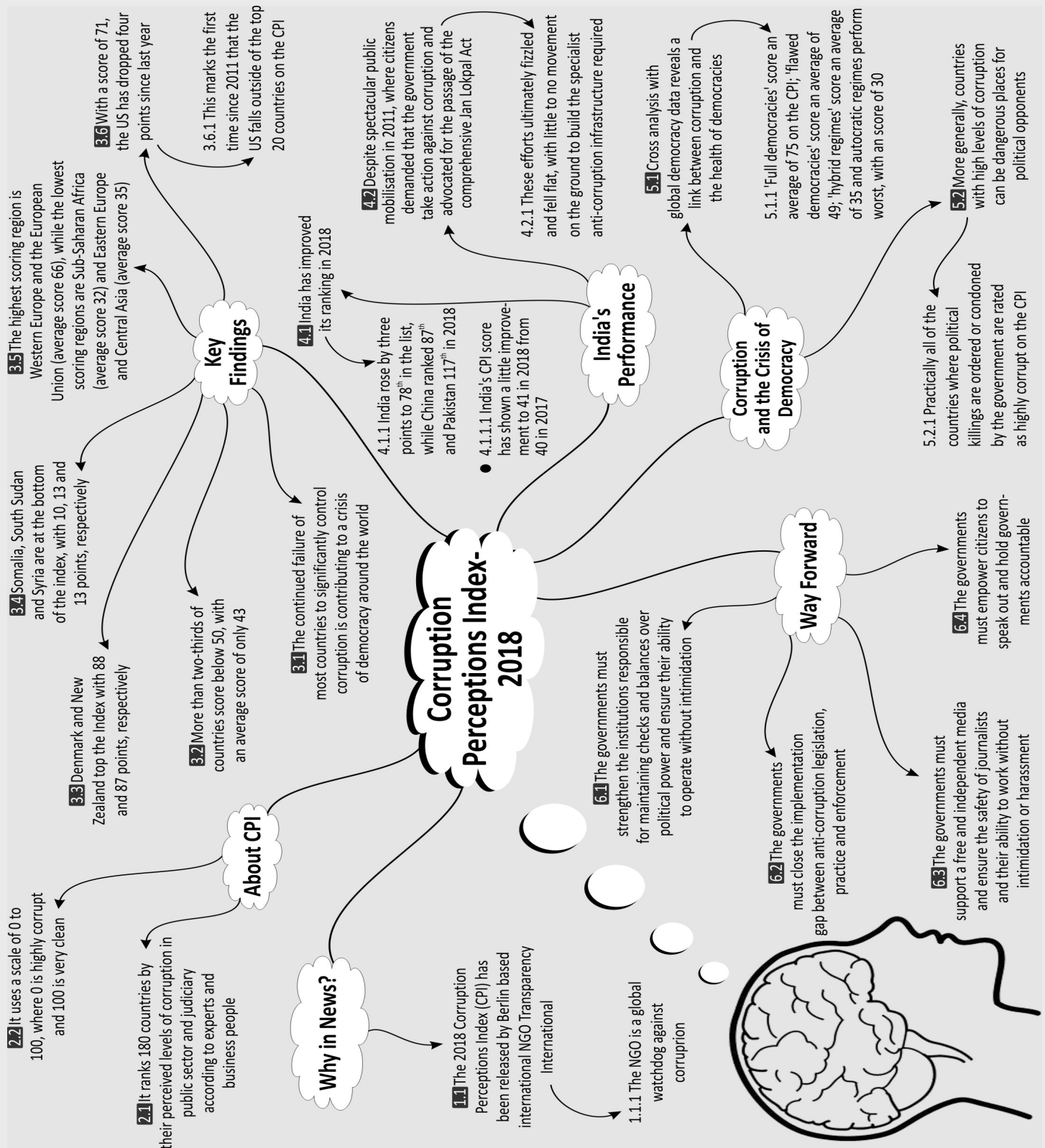
- ◆ It will support legitimate European trade with Iran, focusing initially on the sectors most essential to the Iranian population -- such as pharmaceutical, medical devices and agri-food goods. However, it will be possible to expand it in the future.
- ◆ INSTEX is not only a matter of Iran-EU relations but also embodies a new approach by the bloc towards US policies. It becomes an opportunity when it's understood as an experiment and as part of a bigger project to strengthen EU economic power.
- ◆ It will function under the highest international standards with regards to anti-money laundering,

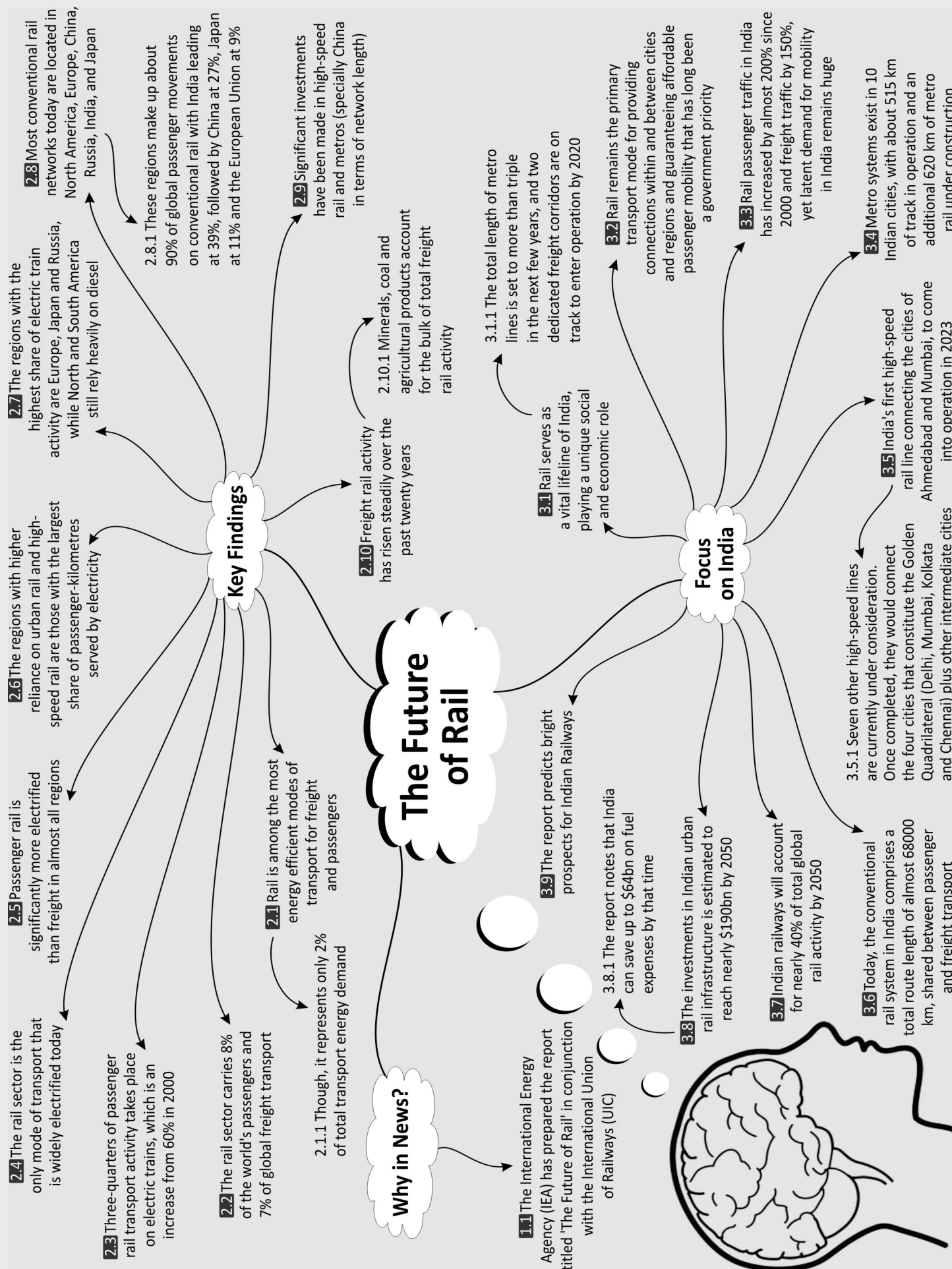
combating the financing of terrorism (AML/CFT) and EU and UN sanctions compliance.

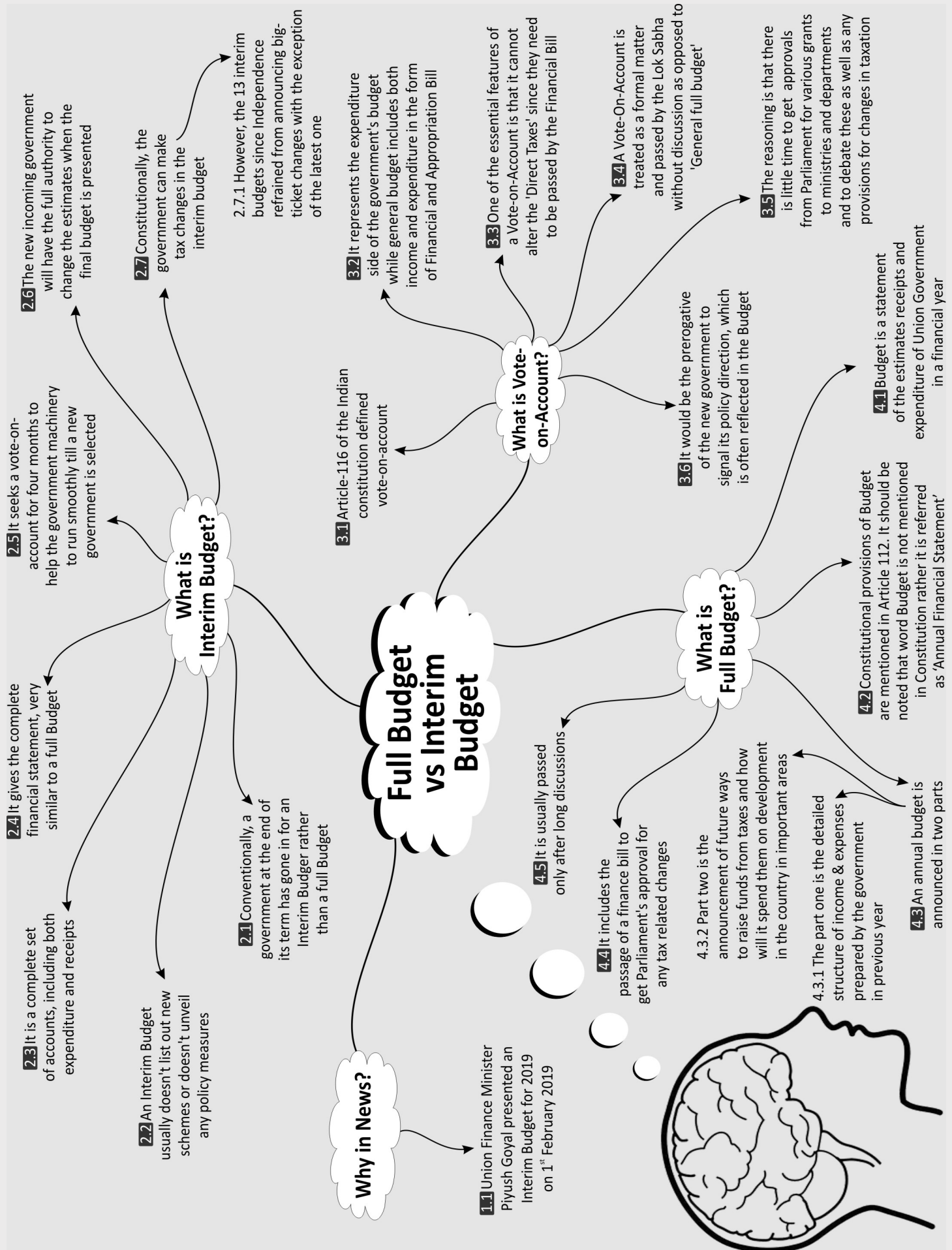
Background

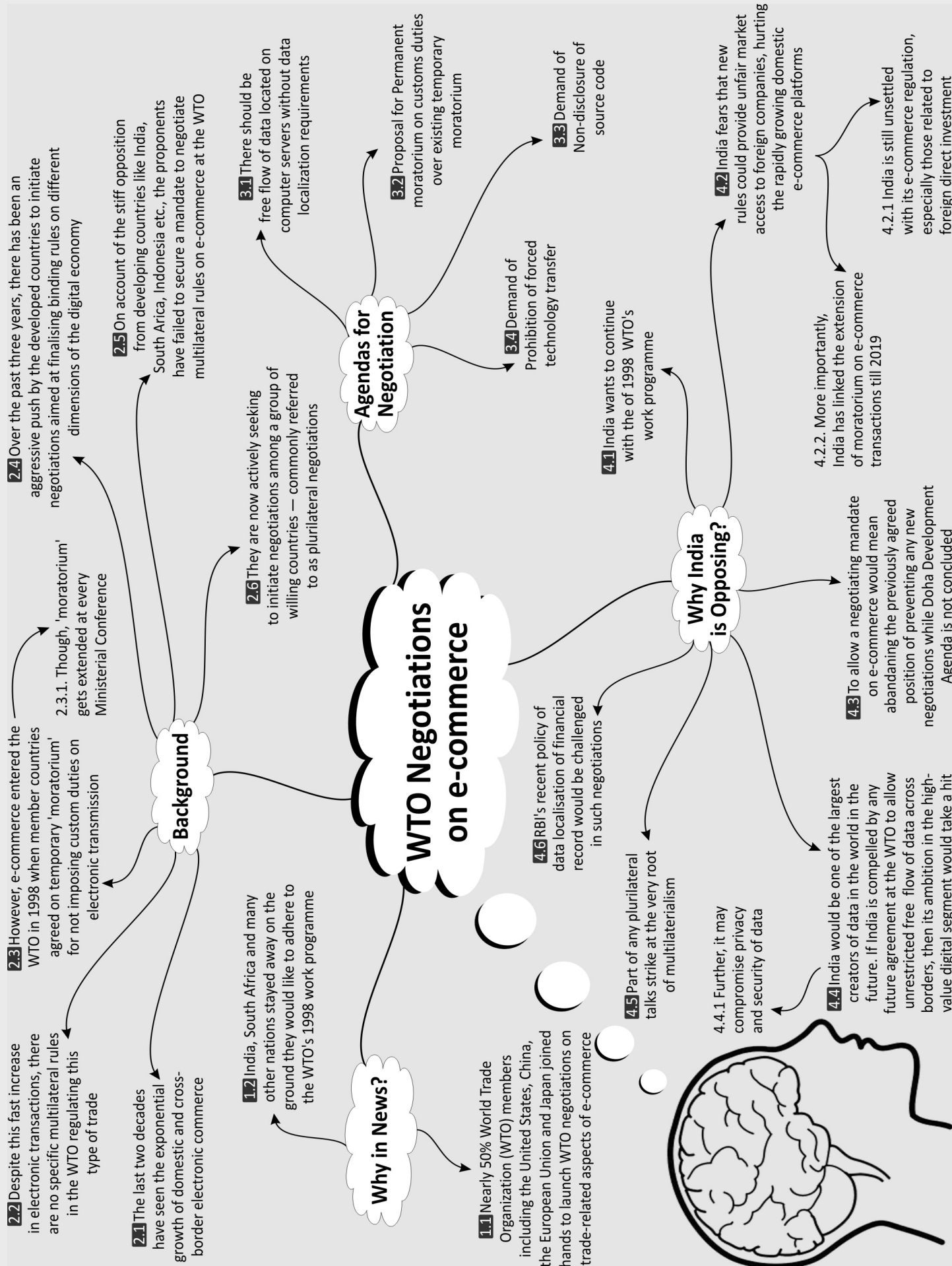
In 2018, the United States has reimposed sanctions on Iran that it lifted just two years ago. President Donald Trump withdrew from the multilateral deal, known as the Joint Comprehensive Plan of Action (JCPOA), for "disastrous flaws" that he said posed a security threat. However, along with Russia and China, the EU maintains that Iran has not broken its side of the deal and should be allowed to trade.

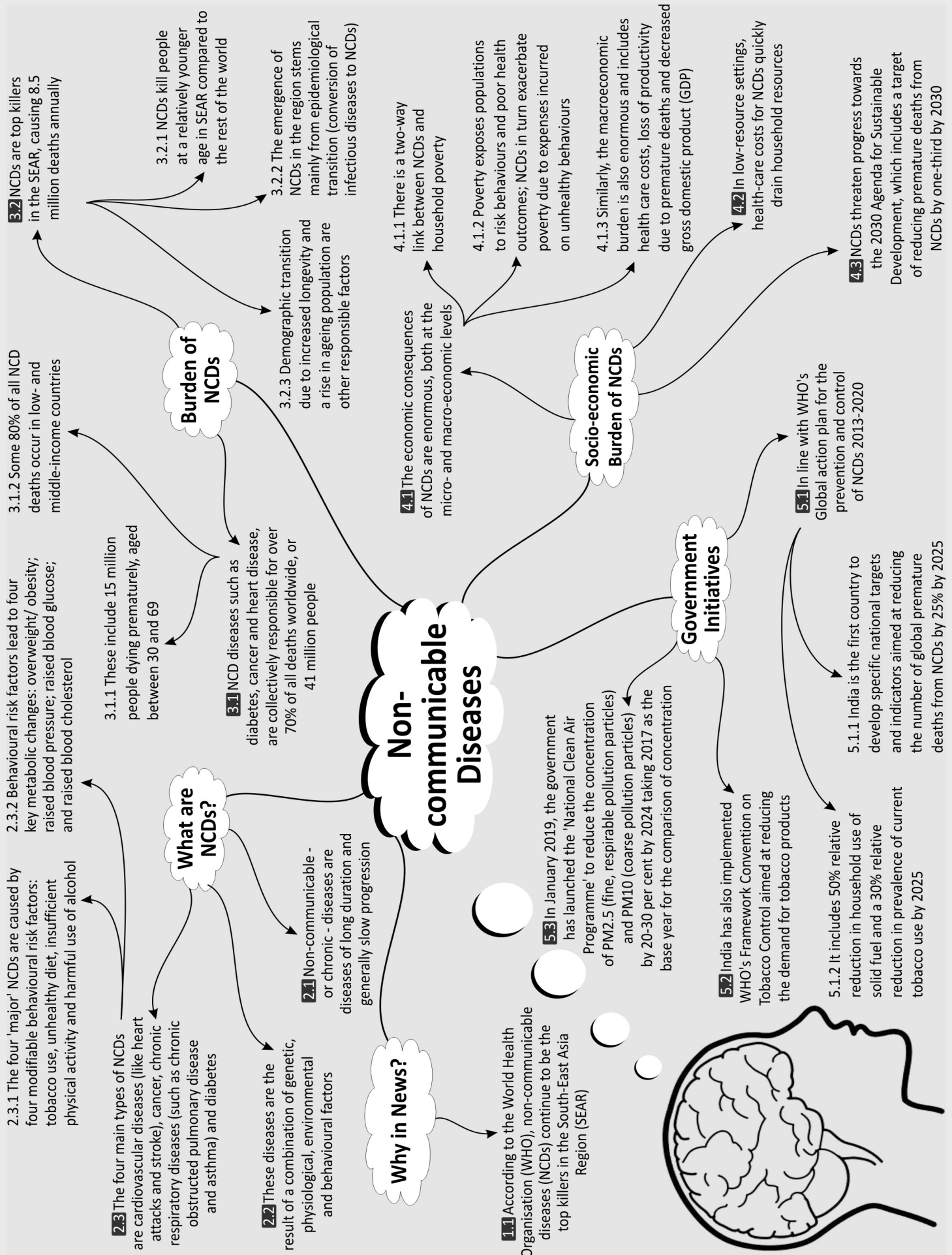
SEVEN BRAIN BOOSTERS

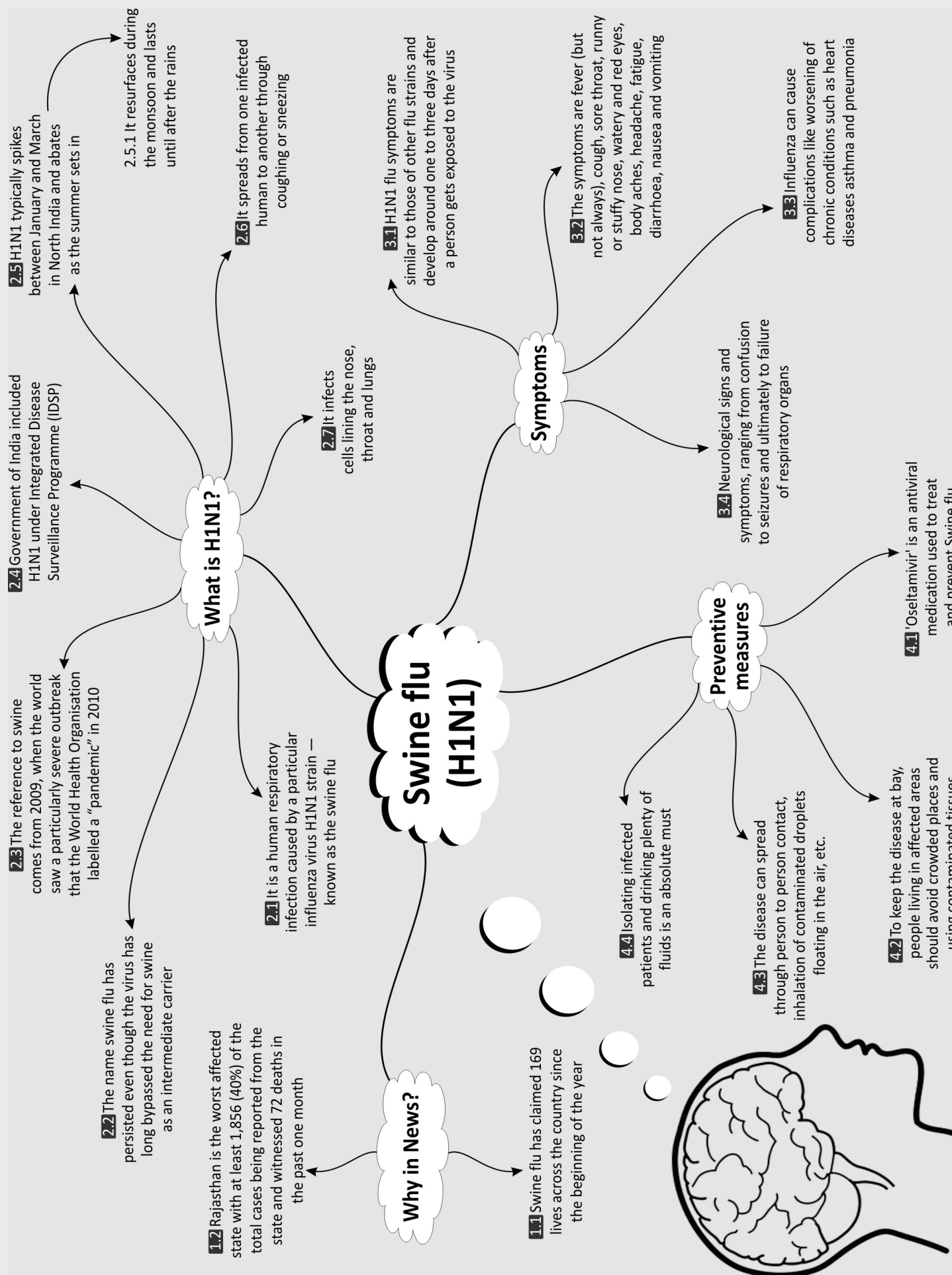


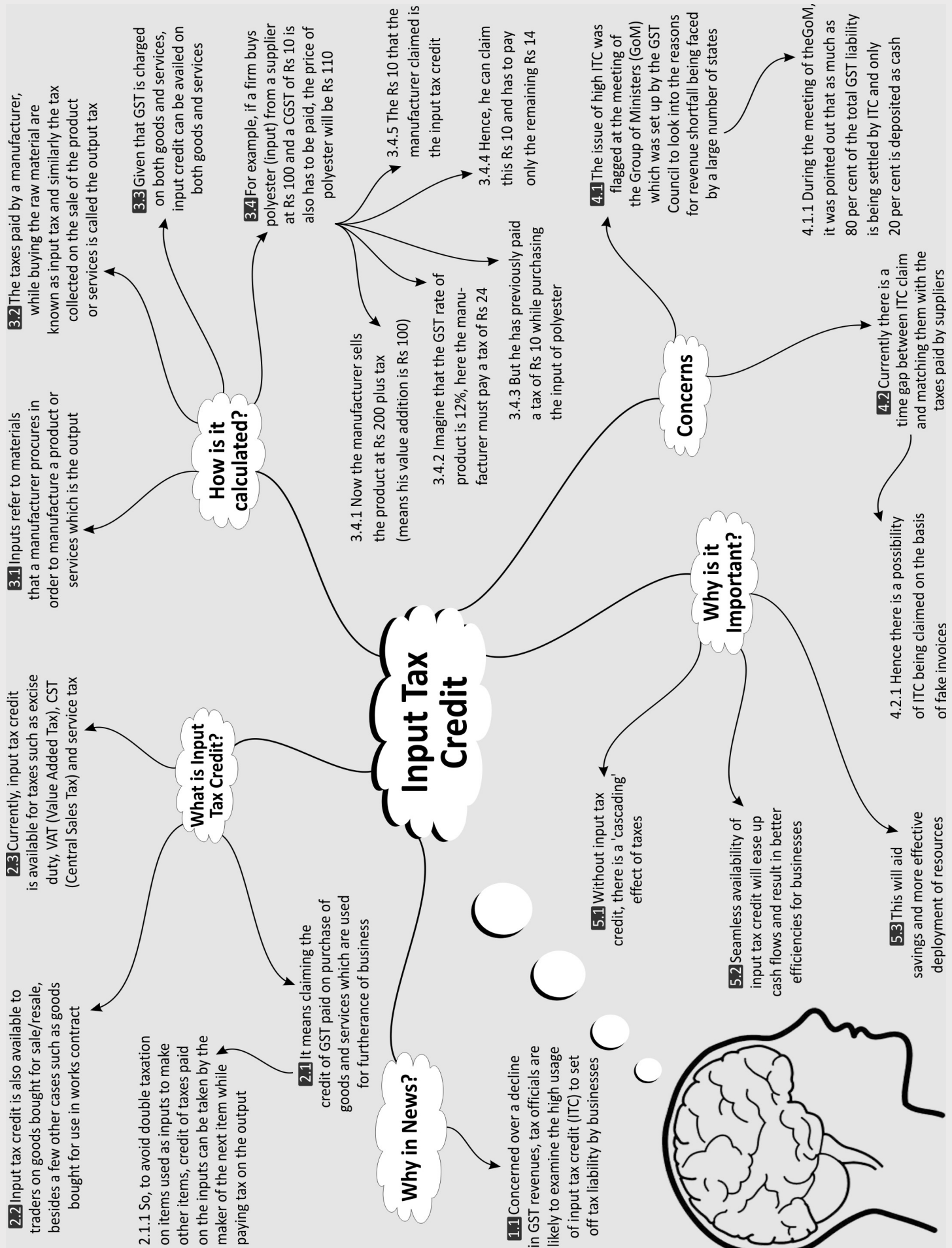












SEVEN MCQ's WITH EXPLANATORY ANSWERS (Based on Brain Boosters)

Corruption Perceptions Index - 2018

Q1. Consider the following statements in respect of 'Corruption Perceptions Index (CPI) - 2018':

1. India has been ranked 78th among 180 countries in 2018 index.
2. CPI 2018 has been released by Transparency International and World Bank.

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: (a)

Explanation: Statement 1 is correct. India has improved its ranking on a global corruption index in 2018. India rose by three points to 78 in the list of 180 countries in the world, while China ranked 87 and Pakistan 117 in 2018. Despite spectacular public mobilisation in 2011, where citizens demanded that the government take action against corruption and advocated for the passage of the comprehensive Jan Lokpal Act., these efforts ultimately fizzled and fell flat, with little to no movement on the ground to build the specialist anti-corruption infrastructure required.

Statement 2 is not correct. CPI 2018 has been released by Transparency International.

The Future of Rail

Q2. Consider the following statements in respect of 'the Future of Rail':

1. Rail is among the most energy efficient modes of transport for freight and passengers; it represents only 2% of total transport energy demand.
2. India makes 39% of global passenger movement on conventional rail.

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 Energy Agency (IEA) has prepared the

report titled 'The Future of Rail' in conjunction with the International Union of Railways (UIC). According to the report rail is among the most energy efficient modes of transport for freight and passengers; it represents only 2% of total transport energy demand. The rail sector carries 8% of the world's passengers and 7% of global freight transport.

Most conventional rail networks today are located in North America, Europe, China, Russia, India, and Japan. These regions make up about 90% of global passenger movements on conventional rail with India leading at 39%, followed by China at 27%, Japan at 11% and the European Union at 9%.

Full Budget vs Interim Budget

Q3. Consider the following statements:

1. Generally vote-on-account also represents both income and expenditure side of the government's budget.
2. The provision of a "vote-on-account" is used by a regular government, while an "interim budget" is a provision used by a caretaker government.

Which of the statements given above is/are correct?

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

Answer: (d)

Explanation: Both statements are incorrect. A vote-on-account represents the expenditure side of the government's budget while general budget includes both income and expenditure in the form of Financial and Appropriation Bill respectively.

An Interim Budget is not the same as a 'Vote on Account'. While a 'Vote on Account' deals only with the expenditure side of the government's budget, an Interim Budget is a complete set of accounts, including both expenditure and receipts. While the law does not debar the Union government from introducing tax changes, normally during an election year, successive governments have avoided making any major changes in income tax laws during an Interim Budget.

WTO Negotiations on e-commerce

Q4. With reference to the 'WTO negotiations on e-commerce', consider the following statements:

1. E-commerce entered the WTO in 1998, when member countries agreed not to impose customs duties on electronic transmissions and the moratorium has been extended periodically.
2. India wants to continue 1998 agenda to be the basis of any conversation about e-commerce.

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. E-commerce, which developed largely after the WTO's creation in 1995, was not part of the Doha round of talks that began in 2001. However e-commerce entered the WTO in 1998, when member countries agreed not to impose customs duties on electronic transmissions and the moratorium has been extended periodically.

India, South Africa and many other nations stayed away on the ground they would like to adhere to the WTO's 1998 work programme. India wants to continue with the current work programme of 1998.

Non-communicable Diseases

Q5. Consider the following statements in respect of 'Non-communicable Diseases':

1. Non-communicable or chronic diseases are diseases of long duration and generally slow progression.
2. The major risk factors behind these diseases are tobacco use, unhealthy diet, insufficient physical activity, stress and harmful use of alcohol.

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. Non-communicable - or chronic - diseases are diseases of long duration and generally slow progression. These diseases are the result of a combination of genetic, physiological, environmental and behavioural factors. The four main types of NCDs are cardiovascular diseases (like heart attacks and stroke), cancer, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes.

Swine flu (H1N1)

Q6. Consider the following statements in respect of 'swine flu':

1. It is caused by a particular influenza virus H1N1 strain — known as the swine flu.
2. It spreads from infected animal to persons.

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 Statement are correct. It is a human respiratory infection caused by a particular influenza virus H1N1 strain — known as the swine flu. H1N1 flu symptoms are similar to those of other flu strains and develop around one to three days after a person gets exposed to the virus. H1N1 typically spikes between January and March in North India and abates as the summer sets in. It resurfaces during the monsoon and lasts until after the rains.

It spreads from one infected human to another through coughing or sneezing. But, it can also spread from infected animals to person.

Input Tax Credit

Q7. With reference to the 'input tax credit', consider the following statements:

1. For consumers, it will reduce the indirect tax burden on their purchases.
2. Currently, input tax credit is available for taxes such as excise duty, VAT (Value Added Tax), CST (Central Sales Tax) and service tax.

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. For consumers, the introduction of the input tax credit (ITC) mechanism will reduce the indirect tax burden on their purchases. It will cause a paradigm shift from individuals paying more taxes to more individuals paying taxes. It means claiming the credit of GST paid on purchase of goods and services. If the tax paid on inputs is higher than the tax on the output, the excess can be claimed as a refund. Currently, input tax credit is available for taxes such as excise duty, VAT (Value Added Tax), CST (Central Sales Tax) and service tax.



SEVEN IMPORTANT FACTS FOR PRELIMS

1. According to World Steel Association (worldsteel), what is the global position of India in steel production?

–2nd

2. Who has been awarded 'Sahitya Akademi Awards- 2018' for Hindi?

–*Chitra Mudgal*

3. Which state government has approved the construction of world's longest expressway?

–*Uttar Pradesh - Ganga Expressway (Prayagraj to Western UP)*

4. In which state, PM Modi has dedicated 'Integrated Refinery Expansion Project' to the nation?

–*Kochi, Kerala*

5. In Interim Budget 2019-20, which commission was announced to boost cow milk production and an effective implementation of laws and welfare schemes for cows?

– *Rashtriya Kamdhenu Aayog (National Cow Commission)*

6. Who has been awarded 'IFFCO Shrilal Shukla Smriti Sahitya Samman' for 2018?

– *Ramdhari Singh Diwakar*

7. Which indigenously manufactured train renamed as 'Vande Bharat Express'?

–*Train 18*



SEVEN IMPORTANT FACETS OF INTERIM BUDGET 2019-2020

1. Key Message in the Interim Budget 2019-20

- ◆ Moving towards realizing a 'New India' by 2022.
- ◆ Clean and healthy India with universal access to toilets, water and electricity to all.
- ◆ An India where Farmers income would have doubled.
- ◆ Ample opportunities to youth and women to fulfil their dreams.
- ◆ An India free from terrorism, communalism, casteism, corruption and nepotism.

2. Ten dimensions of Vision for India of 2030

India would be a modern, technology driven, high growth, equitable and transparent society:

- 2.1 To build physical as well as social infrastructure and to provide ease of living;
- 2.2 To create a Digital India, digitize government processes with leaders from youth;
- 2.3 Making India pollution free by leading transport revolution with Electric Vehicles and focus on Renewables;
- 2.4 Expanding rural industrialisation using modern digital technologies to generate massive employment;
- 2.5 Clean Rivers, safe drinking water to all Indians and efficient use of water through micro irrigation;
- 2.6 Besides scaling up of Sagarmala, Coastline and Ocean waters powering India's development and growth;

2.7 Aim at our space programme – Gaganyaan, India becoming the launch-pad of satellites for the World and placing an Indian astronaut into space by 2022;

2.8 Making India self-sufficient in food, exporting to the world to meet their food needs and producing food in the most organic way;

2.9 A healthy India via Ayushman Bharat with women having equal rights and concern for their safety and empowerment;

2.10 Transforming India into a Minimum Government Maximum Governance nation with proactive and responsible bureaucracy.

3. Vision for the next Decade

- ◆ Poised to become a Five Trillion Dollar Economy in the next five years;
- ◆ Aspire to become a Ten Trillion Dollar Economy in the next 8 years thereafter.

4. Income Tax

- ◆ Individual taxpayers having taxable annual income up to Rs.5 lakhs will not be required to pay any income tax.
- ◆ Income up to Rs. 6.50 lakhs are not required to pay any income tax if they make investments in provident funds, specified savings and insurance etc.
- ◆ For salaried persons, Standard Deduction is being raised from the current Rs.40,000 to Rs.50,000.
- ◆ Exemption on levy of income tax on notional rent on a second self-occupied house is also now proposed. Currently, income tax on notional rent is payable if one has more than one self occupied house.

- ◆ TDS threshold on interest earned on bank/post office deposits is being raised from Rs. 10,000 to Rs.40,000.
- ◆ TDS threshold for deduction of tax on rent is proposed to be increased from Rs. 1,80,000 to Rs.2,40,000 for providing relief to small taxpayers.

5. North East

- ◆ Allocation to be increased by 21% to Rs. 58,166 crore in 2019-20 Budget Estimates (BE) over 2018-19 BE.
- ◆ Arunachal Pradesh came on the air map recently.
- ◆ Meghalaya, Tripura and Mizoram came on India's rail map for the first time.
- ◆ Container cargo movement through improved navigation capacity of the Brahmaputra.

6. Fiscal Programme

- ◆ Fiscal deficit pegged at 3.4% of GDP for 2019-20.
- ◆ Target of 3% of fiscal deficit to be achieved by 2020-21.
- ◆ Fiscal deficit brought down to 3.4% in 2018-19 Revised Estimates (RE) from almost 6% seven years ago.
- ◆ Centrally Sponsored Schemes (CSS) allocation increased to Rs. 3,27,679 crore in BE 2019-20.
- ◆ National Education Mission allocation increased by about 20% to Rs. 38,572 crore in BE 2019-20.
- ◆ Rs. 60,000 crore allocation for MGNREGA in BE 2019-20.
- ◆ Allocation for Integrated Child Development Scheme (ICDS) is being increased from Rs.23,357 crore in RE 2018-19 to Rs.27,584 crore in BE 2019-20.
- ◆ The Finance Minister announced that for the first time, the country's Defence Budget will be of over Rs.3 lakh crore.

7. Other Initiatives

- ◆ A National Artificial Intelligence Portal will also be developed soon as a part of the National Programme on 'Artificial Intelligence'. The programme would be catalysed by the establishment of the National Centre on Artificial Intelligence as a hub along with centres of excellence.
- ◆ To provide sustained and focused attention towards development of Fisheries, the Government has decided to create a separate Department of Fisheries.
- ◆ The Finance Minister announced 2% interest subvention to the farmers pursuing the activities of animal husbandry and fisheries, who avail loan through Kisan Credit Card. Further, in case of timely repayment of loan, they will also get an additional 3% interest subvention.
- ◆ Pradhan Mantri Gram Sadak Yojana (PMGSY) is being allocated Rs.19,000 crore in BE 2019-20 as against Rs.15,500 crore in RE 2018-19.
- ◆ A new committee under NITI Ayog to identify all the remaining De-notified nomadic and semi-Nomadic tribes.
- ◆ New Welfare development Board under Ministry of social justice and empowerment for development and welfare of De-notified nomadic and semi nomadic tribes.
- ◆ 22nd AIIMS to be setup in Haryana.
- ◆ Capital support from the budget for Indian Railways is proposed at Rs.64,587 crore in 2019-20. The Operating Ratio of Indian Railways is expected to improve from 98.4% in 2017-18 to 96.2% in 2018-19 (RE) and further to 95% in 2019-20 (BE).
- ◆ The Government to make 1 lakh villages into Digital Villages over next five years.
- ◆ The proposal of 2% interest subvention on an incremental loan of Rs 1 crore for GST registered SMEs.



SEVEN PRACTICE QUESTIONS FOR MAINS EXAM

Answer each of the following questions in 200 words:

- Q1. 'The U.S.'s unilateral withdrawal from the Intermediate-Range Nuclear Forces (INF) treaty threatens to kick-start a new arms race.' Comment.
- Q2. The Indian government is helping to build a thriving community of scientists working to solve health challenges and connecting startups to create a sustainable ecosystem. Discuss how new and existing innovations will be a key for efficient and effective health system.
- Q3. The threat of global warming lies in its unpredictability. Humanity has gotten used to a certain climatic pattern and, now, the rising average temperature is throwing a wrench into it. Discuss.
- Q4. The current agrarian crisis may have worsened due to the sharp fall in agricultural crop prices, but it is also a crisis which is caused by the failure of the non-farm sector in creating enough jobs as is evident from the deceleration in real wages in rural areas. Critically discuss.
- Q5. Modest increases in budgetary allocation to health should have been directed towards reviving primary healthcare not an insurance scheme that does not cover a majority of the treatments. Discuss how neglecting the major components of primary care led to the virtual dismantling of the public health infrastructure.
- Q6. The afforestation goals set under 'National Mission for Green India' assume arbitrary targets that are rooted in habits of (neo) colonial governance rather than "sound science". Critically evaluate.
- Q7. There is a revolution in military affairs that seems to have attracted the attention of strategic analysts and policy planners across the world. The current focus on emerging disruptive technologies may prompt inadvertent conflict and a new era of strategic instability. Discuss.





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