

UPSC



www.upsciq.com

December 2018



TOPPER'S TALK



BURNING ISSUES



UPSC PRELIMS CAPSULE



CURRENT AFFAIRS



**UPSC MAINS ANSWER
WRITING PRACTICE**



AIR 2
CSE 2017

Topper's Talk	1	3) Gram Panchayat Development Plan	66
International Relations	6	4) Sextortion Law of Jammu & Kashmir	67
1) India Paying Iran in Rupees	6	5) Capital Punishment in India	68
2) Kimberley Process	7	6) Supreme Court on Rafael Deal	69
3) Trade War & Huawei's CFO	8	7) Shahpur Kandi Dam Project	70
4) Strengthening of Boko Haram	9	8) Witness Protection Scheme 2018	72
5) Qatar to Exit OPEC	11	Governance	74
6) Geopolitical Importance of Island	12	1) Gender Sensitization of Judiciary	74
7) G20 Summit 2018	14	2) Global Nutrition Report 2018	76
8) One Hour Rule for Online Terrorism	16	3) Menstrual Hygiene for Rural Women	78
9) India to Give Bhutan Rs. 4,500 Crore	17	4) National Pension System	80
10) China-Taiwan Relations	18	5) Adivasis in Chhattisgarh & M.P.	82
11) Australia Recognized West Jerusalem	19	6) Ujjwala Yojana & Its Challenges	84
12) India will Give Maldives \$1.4 Bn	20	7) Womb Transplant	87
13) Trump's Syria Withdrawal	21	Economy	88
14) Trans Regional Maritime Pact	23	1) Cop 24 and Summit	88
15) New Framework to Combat Terrorism	24	2) Direct Benefit Transfer for Electricity	89
Science and Technology	25	3) 5th Bi-Monthly Monetary Policy	90
1) 3D Printing in Pharma Sector	25	4) Global Wage Report 2018	91
2) China's Change E-4 Mission	26	5) Addressing Agrarian Distress of India	93
3) Swaminathan Calls GM Corps A Failure	27	6) Bogibeel Bridge	94
4) Project Dragon Fly	29	7) Maharashtra Govt.to Redevelop Dharavi	96
5) Effects of Drugs Discharge into Yamuna	30	8) Financial Literacy & Financial Inclusion	97
6) Ethanol Blending	31	9) IMO's New Rule for Oil	98
7) Mission Gaganyaan	32	10) Public Credit Registry	99
8) Generic Drugs & Government Push	33	11) Economy of Soyabean Malwa Region	100
9) GSAT-7A Launched	35	12) Issues with Ultra-Mega Power Projects	101
10) Saturn to Lose Its Rings	36	13) Farm Loan Waiver : Boon or Bane	102
11) ISRO's Small Satellite Launch Vehicle	38	Geography	103
12) Troubling Power Sector	39	1) 2018 - 4th Hottest Year & Climate	103
13) Bharat Net Project	40	2) Atmospheric Iodine Destroying Ozone	105
14) Submarine Rescue System	41	3) Biodiversity Offsetting	106
15) Gene Editing in Human Embryo	42	4) Ocean Warming - Southern Reef	107
16) Global Hackathon	44	5) Vegetation to Reduce Sea Acidification	108
17) Microbiome Research	46	6) Titli Cyclone	109
18) Cheap Hydrogen Production	47	7) Water & Energy Sector Skyrocketing	111
19) NASA's Insight Spacecraft	48	8) Cyclone Phethai	112
20) Prevention of Malaria's Side Effects	50	9) Reforms for Decarbonizing India	114
21) Life on Titan (Saturn's Moon)	51	10) Global Burden of Disease Report	115
22) No First Use Policy	53	11) Pm Modi In Andaman & Nicobar	116
23) Opioid Drugs & Its Adversities	55	12) Rat Hole Mining	117
24) Oxytocin Ban Removed	56	13) Indonesia Tsunami & Volcano Eruption	119
25) Mission Raksha Gyan Shakti	57	Spice of the Month	120
26) Toxic Talc by Health Canada	58	Prelims Practice Questions	130
27) Tele-Robotic Surgery	59	Mains Practice Questions	139
28) Train 18: Fastest Train in Nation	61	Solutions to the Prelims Questions	140
29) Transgenic Rice with Reduced Arsenic	62		
Polity	63		
1) Consumer Protection Bill	63		
2) Cyber Surveillance Order	65		

TOPPERS' TALK

In the second attempt of Civil Services Examination, Anu Kumari attained 2nd rank all India level in the examination. Her primary source for the exam preparation was Internet which She developed the aptitude of filtering the relevant content. Congratulations from the Study IQ Team for your exceptional achievement. We are delighted that your efforts have been rewarded in a grand way.

What is your background and how was your childhood and nurturing. Because in women's context, the childhood and early stage of life play a pivotal role.

My early education has been done from Shiva Shiksha Sadan, at Sonipat, Haryana, it is a private school. From k.g. to 12th class, I have studied in the same school. Father's salary was not enough to educate all four of us. Albeit, parents usually don't put any question in the education of boys but some questions are always raised in girls' education.

But, my case was a bit different. I used to top in every class from the beginning of my school, so I and my younger brother were in the same school. But, later on when some financial constraints met the family, father shifted my brothers to other schools which were bit cheaper in comparison. So, parents should indispensably not differentiate among children for the education. My School also helped me in my education. On the request of Angrez Singh, who happens to be my uncle, my school waived off school fee of my full 11th standard. My family supported me a lot in my early education. I used to get involved in sports easily. After the school, I used to first play then head for my homework. I have always been an early riser, used to rise up around 4AM. Father used to only call one time and I got wake up, family's environment was something like this. I was involved in other things also like painting, dancing, singing etc. and I also won an scholarship in the school which helped me a bit on finance.

When did you think of UPSC that you want to go into the administration? Was it because parents told you to do so, or it occurred to you in early days?

In the childhood days, I used to hear a lot about these services, so the thought had taken a rise in those days that yes it is very prestigious job and I too want to be an IAS officer.

But, since there are some harsh realities in life also, so I had to back up the family on the financial front. After completing my graduation and MBA, I took up a job, got married in 2012 and till 2014, I had a son. So, meanwhile in balancing the job-family life, civil services aspiration got lost somehow.

Then, who do you take inspiration from? And was there any incident which ignited the aspiration again into you?

Swami Vivekananda has inspired me immensely, I have read his most of the books and I think nobody can take his place. There can be no incarnation of Swami ji on earth. For, the civil services, it wasn't any person who inspired me, rather during the job it occurred to me that I am not living that life which I have ever thought of. There was no internal satisfaction within me, which I get after doing something better the people and I started to feel meaninglessness in life. I couldn't gather the courage to leave a proper job to prepare for the civil services. For this predicament, my maternal uncle (Atar Singh) and my brother encouraged me for this preparation. My uncle (mama ji) sent an sms message to me that if I leave the job and prepare for the civil services then he will completely take care of my son. Although, I never asked him for this thing, but that message worked like a precipitating point for me. My younger brother (Vinit Kumar) convinced me to leave the job and do prepare for CSE, in fact, he also filled my 2016 exam form.

Where is Vinit Now?

He has been selected as an auditor in Jammu and Kashmir. Right now, he is working in a bank and he will leave the bank's job to work in Jammu and Kashmir.

You might have probably been met to several girls after your results and they might have expressed their aspirations also that they want to be an IAS officer. So, what message you want to send those girls?

For girls, there is huge space in my heart. I have been raised in a society like Haryana which makes me fully aware with those constraints which girls usually tackle every day. I have only one message to every girl to come above of the 'victim image'.

Don't undermine yourself by perceiving a concept that the whole society is against the girls and we have to face lots of hard situations. Take those hard situations and weaknesses as your strength. Think in a way that if anyone wants to draw us back, and then we'll show them how to get above of these things and succeed. There is very prevalent narrative among the people about the women, "She have paid the duty of mother also and simultaneously cracked exams also and succeeded." Here, I want to clarify one thing that I have neglected many responsibilities in these

past 1.5 years for the exams. So, one has to pay a price somewhere in order to gain something. In fact, my mother took care of my son totally. One more thing, you can't be a superwoman that you can achieve each and everything in life. List out your priorities, be self-sufficient for yourself. Being economically independent has become very important for women nowadays. Don't neglect your career after marriage or coming into motherhood. Try to grab support from your family and friends.

You have used the internet in a frugal way which is very much important in today's scenario. News came out recently, that a coolie has cleared the state public service commission examination. So, you didn't go to any coaching institute so how did you filter the information over the internet?

You have raised a very significant point. Today, people living in the hinterlands and extremities of India can improve themselves and achieve by the help of technology. So, don't consider it as a constraint if you can't come to Delhi for the preparation. I can give you my example. I had not joined any coaching institute and I have done my preparations living in village. Since, it was proving hard doing the preparation with my son, so my mother took his responsibility and I went to my aunt's house which is situated in village. The place was quiet and serene, and there maximum part of my preparation was done through the internet. English newspapers were not possible in the village, but the Hindi newspapers could be available. So, I started reading the current affairs online.

So, here the twist arises because there are numerous websites over the internet. Someone explains with audio, another one with video so there are multitudes of information over the internet. If one wants to cover from different sections of the internet, she/he can get lost meanwhile.

Decide just one or maximum two source for the preparation and stick to those sources. Be it any website or any channel or any other digital medium, judiciously decide those channels and just stick to them. Don't go to multiple sources, it will kill your time.

What will you say to the newcomers who are inspired by you and other IAS toppers? Where should they start in this preparation?

Don't copy any strategy of any IAS topper or the one who has qualified it. Everyone is different and unique and everyone adopts a different play. The kind of capacity he/she had during his/her preparations may not converge with yours. His/her circumstances, mental capacity, background are different than the

rest of the world. For me, this success was somehow possible because of my interdisciplinary study. My MBA was from finance and marketing and I have also worked in the corporate for nine years, so I had already studied those topologies and terms related to the finance and marketing, so it helped me. If a science graduated person tries to study finance from just one booklet, won't be quite freeway. Joining any coaching institute is not a necessity. There are several candidates who have cracked the exam without the help of any coaching. But, at the same time, it is also not convincing that those who do join any coaching institute are just wasting the money. Coaching institutes guide you in the preparations of the exams. Those institute can resolve your problems if you get ever. I couldn't go to anyone if I ever had any kind of doubt, but the person studying in a coaching institute can ask to the mentors and teachers.

Ultimately, it is your hard work, which can land you to the success. Know your strengths and weaknesses, don't copy anyone's strategy directly. For the starting of these studies I would recommend to go through the NCERT first. They are easy to understand, read them and solve the questions based on them. Attempt the MCQs, by this one will be available to know that how much part of it she/he is able to grasp. If you're not able to imbibe in much amount then join any coaching institute.

What was your strategy for Mains exams? How did you check your written answers?

There is section over the insightsonindia.com called, 'secure'. The site put 8 questions daily of all the four papers: 1, 2, 3 and 4. The website asks the students to write answer and practice according to them. So, I used to watch those questions and used to write answers based on them and I did this for the whole 5 months, every single day without skipping any day. It infused the full writing practice in me, that how to construct the answers: intro, body, conclusion and I have done this by self-study.

So, did you evaluate them by yourself?

Yes Sir, I evaluated them by myself. It was clearly visible sometimes. Because in the beginning, I used to write for two and half pages for the 150 words' questions, means that I was way off the target. People used to upload their answers over that platform.

You mean, during the preparation, one must watch the surroundings also?

Yes, you have raised a very rational thing. If one is doing preparation all by self, by isolating yourself from rest of the world, then it is much important to

take notes on the competitors you are going to face in the examination. So, you must know that who you are going against to.

Because I also used to score 60-65 questions, but the competitors score around 140-150, sometimes even more. So, one must be aware with the fellow-competitors. So, even if you are preparing all by self, don't get into a cocooned environment. You have to aware of your surroundings.

You have opted English in the examination. What about those candidates who have opted Hindi language in their examinations? Their numbers of selection are very much less. There are some platforms which are trying to translate the essence which The Hindu and The Indian Express have. What you have to say on that?

There is a problem with Hindi that content available in Hindi is very much less than that of English. Online education platforms are also maximum of them are in English. That essence which The Hindu and The Indian Express possess in English can't be the same in Hindi. I can only say that one must know some basic English to understand the articles of these newspapers. But, I want to say it emphatically that Hindi medium students should not deject themselves. Hindi opting candidates can write their Mains answers in Hindi and also the Interview in Hindi.

One can also write in his/her native language. Last year an Oriya candidate wrote his paper in Oriya language and secured 3rd rank.

This is totally commendable thing. Very much appreciable thing it is for sure. And do not misperceive the interview panel. The panels give you the choice of language, but since all the terms of English can't be spoken in pure hindi so they recommend to adopt for Hindi + English. They are very comfortable. In fact, those candidates who have written their papers in English, they can speak Hindi in interview.

How was Your Interview? Tell us about your experience in Interview?

I got 187 marks in the interview and my corporate background helped me a lot in this as I have 8-9 year of experience in the corporate world. I had experience of many interviews before, so I was not scared for the interview at all. In fact, I was very excited to face it. I had given multiple mock interviews in various institutes before attending the final interview. I was expecting a very good score in the interview. But I didn't score to my expected level. While giving mock interview I was told that I am going to score 200+ marks in the interview and even if I

score 230+ also then it would not have been a surprise. But, I scored 187 in the interview. Interview score was very less this year, 206 was the highest.

What kind of questions you were asked in the interview?

Since, I am a married woman, one of the female members of the panel asked me regarding the fact that why today's girls/generation are not ready to live in joint families. Do you agree or not?

- ▶ Joint families are getting disintegrating why?
- ▶ Why students are committing suicide?
- ▶ What are the flaws in our education system?
- ▶ Our budget has recently launched a national health protection scheme (insurance scheme), what are its drawbacks? Will it be beneficial in the coming year?

Many questions were asked from me regarding my corporate experience of 8-9 years.

- ▶ What is Unethical practice, the measure to stop these practices?
- ▶ As you have worked in the private sector for so long what will be your approach in the public sector?
- ▶ How will your outlook change for it?
- ▶ You have been in the corporate sector for 9 years, what kept you motivated?
- ▶ What have you learnt from your 9 years of corporate service?

Many questions were asked regarding the current affairs. Like our 40 Indians were killed in Iraq by ISIS. What is your take on the fact that government handled it. Many interesting questions were also asked.

Like one panelist asked, "Many pink pajama are flying on red fort today what is your take on it?"

I didn't know the answer for this so I said, "Sir, it sounds very interesting, but I don't know anything about it." But from pink, I knew it is related to women empowerment.

So, Sir gave the proper explanation for this that it is regarding the women empowerment, as women are coming up in every field.

One of the members asked me that do I consider myself as an empowered woman, which I replied, yes, I see myself as an empowered woman.

Further, sir told me that I have served in the corporate sector for 9 years and now I am coming to serve people, this is women empowerment.

Since I had filled in my DAF that painting and dancing are my hobbies. So one of the panel members asked me, we say the artist has a third eye, what is your take on this, Do you have a third eye?

Interview peoples are very cordial. They know that since you have cleared the examination so a good

amount of knowledge you possess. One shouldn't be nervous at all in the interview. They want to see your approach in life, whether it is positive or negative. They want to see whether you are solution oriented or problem oriented. In the case of pressure, how will you tackle the situation?

How many questions you were asked and how many questions you couldn't answer, if there were any?

In total I was asked 25/26 questions, from which I didn't answer 3 questions.

► First was Pink pyjama.

► Second question was recently we have a new minister from Hindu college, they asked me to tell his name which I didn't know, and

► Third question was what is the difference between Gurgaon metro and Delhi metro on ground level? So, since I had not travelled in the Gurgaon metro so I can't answer on the comparison of these two metro. It was a normal discussion. They didn't grill or cross-questioned much. If they pressurize any candidate they only want to check will that person displace from her/his stand or will adhere to it? They just want to know you. In fact, in the starting of the interview, they ask you some light things, like tell us about your normal personality. Just reveal your personality to them.

Before 3 days of the interview I was not able to sleep properly. Not because of the tension of the interview, I was very excited. But, that was a very turning point of my life which will make or mar my career because I had taken a twist with my career.

Candidates should not worry about interview at all. If they are nervous it is all natural. Be confident and take care of your health.

What was your optional subject?

My optional was Sociology. I didn't attend any coaching for my optional subject sociology. I prepared for it from home, I bought notes from the market. I have searched a lot regarding my optional subjects online. I read blogs of UPSC ranker 55 and followed the Booklist it's book list.

As I am from science background it was difficult for me to follow subject of humanity. In the beginning of the study, it was all greek and latin to me sometimes. But after taking multiple revisions of the subject them many things were clear to me and I was getting interested in their reading.

As I finished my Pre UPSC exam I enrolled myself in the Mains test series. Many of my queries were solved by the test series.

My Marks :

I got 318 in sociology optional which are among the highest.

In GS:

Paper1- 102

Paper-2 -129 (among highests)

Paper 3- 134

Paper 4 -101 (among the highests)

I prepared a lot for ethics as I am very much interested in reading the thinking part. Because I love to read regarding Swami Vivekananda so the Ethics paper was the paper wher you can use all the quotes of Swami ji or other legends. I prepared from - G Subbarao which I enjoyed in reading.

I read several thinkers, and cleared about the differences Integrity, aptitude, sympathy, apathy and case studies from this.

What are your preferences in the civil services and what cadre you would chose?

It is 1st - IAS, 2nd- IFS, 3rd - IPS. Chosen Cadre – Haryana.

You have a child of 4 years, how did you manage this mother-child relationship in this preparation?

This was the very hard decision for me, to live away from my child.

Earlier, I decided to start my preparation here only (at my mom's house), but the library use to get to close around 5 clocks in the evening. After coming home, from the library I realized that my time from 5 in the evening to the 10 in the evening used was not getting utilized. I also had the constraint of the age. Both things (living with my child and preparing for UPSC) cannot be handled hand to hand. This was a time for me to decide my career priorities. My mom has taken care of my child very properly, I might myself have not done that properly. It was very difficult for me to keep my child away from me. So, whenever I used to open whatsapp or facebook, the thought of my son used to light into me and I used to shut it down immediately. I had deactivated from whatsapp, facebook and all these virtual platforms. And this thing I am also watching in today's youth that they are highly distracted because of these virtual platforms.

Any message you would like to give?

I would like to say that, please make women safe around you, whether you are women, girl or boy, please make women feel secure everywhere. Create a safe environment for women. Keep big dreams and hope for yourself. Our scholars and great

scientist have said very important things to it. One quote of Dr. APJ Abdul Kalam would like to assert:

"Dream is not that which you see while sleeping it is something that does not let you sleep."

2050: India will be developed cause its youth who have maximum potential.

Hope this aspiration will be energizing for our youth.

We all have someone to aspire us,

In the case of Anu – her inspiration was her parents.

Father - Sh. Baljit Singh, Mother - Smt. Anto Devi

A viewpoint from her parents:

To Baljit Singh : How you are feeling about this?

Father: How much happiness we are feeling, we can't express in words that how much we are happy with our daughter's achievement. But, I am very sad about the things that are happening around girls I feel very sad about it. We keep reading in the newspapers and also listens the surroundings and it used to make me angry. I can't do anything for this, but I feel bad for this. My daughter has worked very hard for this and she has achieved it.

Sir, as we see nowadays that parents often impose their dreams onto their children and may be this is the reason that youths get also somehow distracted. So, have you ever pressurized your daughter for civil services examination?

Baljit Singh : You have raised a very good concern. I personally feel that my daughter has neither imposed her wishes onto us, nor we have done to her. She was very talented among all of my kids. I have never done any comparison among my kids whether he is a boy or girl. I have provided education for all of them.

To the mother: It is a rational fact that mother watches the daughter more closely than rest of the world and maximum time children are nurtured by mother. So, please tell us about your feelings for your daughter.

Smt. Anto Devi : She has been very intelligent since childhood. She never gets tired of studies. If she used to get bored in studies, she used to read Swami Vivekananda and listen to religious songs.

Thank You
Anu Kumari
Rank #2
CSE 2017

Notes

INTERNATIONAL RELATIONS

Why India Paying Iran With Rupees?



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 2 - international relations

WHY IN NEWS?

- ▶ India will import crude oil from Iran using a rupee-based payment mechanism, adding that 50% of those payments will be used for exporting items to Tehran.
- ▶ The official said Iran is open to accepting rupee payment for oil and may use the money to pay for equipments and food items it buys from India.

WHY IS INDIA DOING THIS?

- ▶ Primary reason is because U.S has blocked payments of USD and Euro.
- ▶ Earlier India used European Channels to make payments to Iran.
- ▶ Iranian oil is a lucrative buy for refiners as the Iran provides 60 days of credit for purchases, terms not available from suppliers of substitute crudes -- Saudi Arabia, Kuwait, Iraq, Nigeria, and the US.

INDIA'S EXEMPTION FROM IRAN SANCTIONS

India had won the exemption after it agreed to cut imports and escrow payments.

Under the 180-day exemption, India is allowed to import a maximum of 300,000 barrels a day of crude oil. This compares to an average daily import of about 560,000 barrels this year.

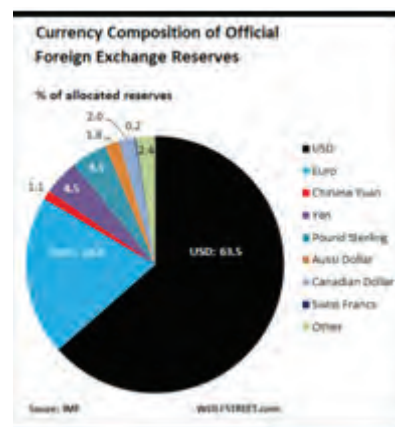
- ▶ India, which is the second biggest purchaser of Iranian oil after China, has since then restricted its monthly purchase to 1.25 million tonne or 15 million tonne in a year (300,000 barrels per day), down from 22.6 million tonne (452,000 barrels per day) bought in 2017-18 financial year
- ▶ Under US sanctions, India will be allowed to export farm commodities, food, medicines, and medical devices to Iran. However, items such as petroleum and petrochemical products, automobiles, steel,

precious metals and graphite are not allowed to be exported to Tehran.

HOW DOES PAYING IN RUPEES HELP INDIA?

- ▶ Iran will mostly use the Indian currency in buying goods from India that will help Indian businesses.
- ▶ It will create some sense of faith in the Indian rupee as a mode of transaction. Our rupees will gain huge on convertibility index.

DOMINANCE OF DOLLAR AS GLOBAL CURRENCY :



(Scan the QR code to watch the video)

Notes



UPSC PERSPECTIVE

GS2 - international organisations

WHY IN NEWS?

► India will Chair Kimberley Process Certification Scheme (KPCS) from 1st January 2018. It was handed Chairmanship by the European Union during KPCS Plenary 2018, which was held in Brussels, Belgium.

WHAT IS THE KIMBERLEY PROCESS?

- The Kimberley Process is an **international certification scheme that regulates trade in rough diamonds**. It aims to prevent the flow of conflict diamonds, while helping to protect legitimate trade in rough diamonds.
- The Kimberley Process Certification Scheme (KPCS) outlines the rules that govern the trade in rough diamonds.
- The KP is not, strictly speaking, an international organisation: **it has no permanent offices or permanent staff**. It relies on the contributions – under the principle of ‘burden-sharing’ – of participants, supported by industry and civil society observers. Neither can the KP be considered as an international agreement from a legal perspective, as it is implemented through the national legislations of its participants

WHAT ARE CONFLICT DIAMONDS?

“Conflict Diamonds” means rough diamonds used by rebel movements or their allies to **finance conflict aimed at undermining legitimate governments**. It is also described in the United Nations Security Council (UNSC) resolutions.

HOW DOES THE KIMBERLEY PROCESS WORK?

- The Kimberley Process Certification Scheme (KPCS) imposes extensive requirements on its members to

enable them to certify shipments of rough diamonds as ‘conflict-free’ and prevent conflict diamonds from entering the legitimate trade.

- Under the terms of the KPCS, participating states must put in place national legislation and institutions; export, import and internal controls; and also commit to transparency and the exchange of statistical data.
- Participants can only legally trade with other participants who have also met the minimum requirements of the scheme, and international shipments of rough diamonds must be accompanied by a KP certificate guaranteeing that they are conflict-free.



(Scan the QR code to watch the video)

Notes

US-China TRADE WAR

की शिकार हुई HUAWEI
की CFO



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 2 - International relations

WHY IN NEWS?

- The arrest of a top Huawei executive has roiled the business world and threatens to derail the tenuous trade truce between the United States and China. Meng Wanzhou, the Chinese tech company's chief financial officer, was detained in Vancouver on Saturday at the request of US authorities.
- She accused by the United States of helping Huawei cover up violations of sanctions on Iran, according to Canadian prosecutors.
- US lawmakers are condemning Huawei, which they say poses a national security threat to the United States.

WHY THE ACTION AGAINST HUAWEI ?

- Over the past couple of years, Huawei has reportedly circumvented sanctions imposed on North Korea and Iran, providing the countries with telecom equipment that can be used for extensive spying on populations, so-called dual use technologies. But the vast majority of criticism has surrounded Huawei's growing influence on global communications in the coming years. The Chinese company will provide technology for 5G wireless internet across the world.
- In 2012, Huawei and ZTE Corp, another Chinese telecom company, were the subjects of an investigation that looked into whether their equipment could pose a threat to US interests.
- That report by US Congress concluded that "Huawei did not fully cooperate with the investigation and was unwilling to explain its relationship with the Chinese government or Chinese Communist Party, while credible evidence exists that it fails to comply with US laws."

TRADE WAR BETWEEN CHINA & USA :

- The US levied a 25 per cent tariff on more than 1,300 Chinese goods, to the tunes of 50 billion dollars. And China responded by levying additional duty on 106 American products.

PRELIMS BITS : WHAT IS A TRADE WAR?

- A trade war is an economic conflict in which countries impose import restrictions on each other in order to harm each other's trade.
- In a trade war, two or more countries create trade barriers on each other in retaliation for other trade barriers.

WHAT ARE TRADE BARRIERS?

- Trade barriers are what governments use to hinder or control free trade (mainly imports from another country).
- There are two types of trade barriers :
 - **Tariff barriers** – Eg: Import tariff, Export tariff, Specific duty, Ad valorem duty, Countervailing duty, Anti-dumping duty, Protective tariff etc.
 - **Non-Tariff barriers** – Eg: quotas, embargoes, sanctions, levies and other restrictions.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

Strengthening of Boko Haram

UPSC PERSPECTIVE

GS Paper 3, Terrorism

WHY IN NEWS:

Nigeria's militant organization Boko Haram is still strengthening in the recent days.

TOPOGRAPHY AND TERRAIN OF NIGERIA:

► Countries in Border with Nigeria: [Republic of Benin](#) in the west, [Chad](#) and [Cameroon](#) in the east, and [Niger](#) in the north.

► Lake Chad shares its water with 4 nations: [Nigeria](#), [Chad](#), [Cameroon](#) and [Niger](#).



BOKO HARAM:

In the local Hausa dialect, Boko Haram means "Western education is forbidden."

The group refers to itself also as Jama'atu Ahlis Sunna Lidda'awati Wal-Jihad, meaning "People Committed to the Propagation of the Prophet's Teachings and Jihad."

Boko Haram militants mainly inhabit areas in the northern states of Nigeria, specifically Yobe, Kano, Bauchi, Borno and Kaduna.

Originally, Boko Haram was referred to locally as the Nigerian Taliban because of their religious similarities to the Taliban.

Boko Haram was founded by Mohammed Yusuf in 2002. Yusuf was captured by the Nigerian police

following the July 2009 Boko Haram uprising. He was summarily executed in public view outside the police headquarters in Maiduguri.

► Police officials had initially claimed that Yusuf was shot while trying to escape. The group has been led by Abu bakar Shekau since 2009, and the terrorist organization has been active since then in north eastern Nigeria.

► The influence of Boko Haram has gradually spread to neighboring Cameroon, Chad and Niger.

► In Nigeria alone, more than 27,000 people have been killed over the past 9 years, and the violence has forced out some 1.8 million people from their homes.

► The group advocates Sharia law and rejects Western education.

► The insurgency led by the Boko Haram is especially strong in the area known as the Lake Chad region. This is a strategic area where the borders of four countries – Nigeria, Cameroon, Chad and Niger, converge.

► Since 2015, these four countries have been collaborating militarily as part of the Multinational Joint Task Force (MNJTF).

► Boko Haram split in August 2016, when IS supported a group of militants who wanted to part ways with Shekau. They crowned Abu Musab al-Barnawi as the new governor of Islamic State-West Africa (IS-WA).

► Shekau has not accepted this change and continues to command militants loyal to him under the group's previous name, Jama'atu Ahlis Sunna Lidda'awati wal-Jihad (JAS). The Shekau faction of Boko Haram is notorious for using suicide bombers to attack military and civilian targets.

► When President Muhammadu Buhari came to power in 2015, there was lot of hope that he would improve the economy and deal effectively with the extremism.

► Hope on both these fronts seems to be vanishing as Nigeria prepares for elections in February 2019.

► The economy of Nigeria largely dependent on export of oil was in turmoil after the international oil prices fell in 2016.

► While Buhari has been criticised for having termed Boko Haram as a 'technically defeated' outfit, he is also accused of providing poor training and inappropriate weapons to the army resulting in massive casualties.

► Some are even accusing the President of purposely doing this so that military could be discredited, to prevent any possible coup d'état. In the 55 years of Nigeria's postcolonial history, the country has been ruled by army generals for 40 years.

- ▶ One of the most notorious terrorist organizations in the world, the Boko Haram, has intensified its terror activities in northeastern Nigeria and the Lake Chad region. Since July 2018, there have been at least 17 attacks on military bases in Nigeria, almost all of them in the region around Lake Chad.
- ▶ The Islamic State (IS) claimed its militants had killed 118 people in five operations in Nigeria and Chad between November 15 and 21. On November 18, in a daring attack, the IS-allied Boko Haram jihadists killed at least 43 soldiers when they overran a base in Metele village near the border with Niger.
- ▶ Boko Haram has proved to be much more resilient than Nigerian authorities had anticipated. Its resurgence might affect the holding of credible polls in Borno, Adamawa and Yobe in February 2019.

- ▶ These areas are too volatile and vulnerable to the Boko Haram banditry.
- ▶ Nigeria needs a long term strategy to defeat Boko Haram as the latest round of violence indicates that the terrorist organization is expected to survive beyond the February 2019 elections.



(Scan the QR code to watch the video)

Notes

QATAR TO EXIT OPEC

OPEC से बाहर होगा QATAR

Qexit

OPEC



(Click on the above image to watch the video)

UPSC PERSPECTIVE :

GS 2 - International relations

WHY IN NEWS:

► Qatar has decided to withdraw its membership from Organization of Petroleum Exporting Countries (OPEC) effective from January 2019 to focus on Liquefied Natural Gas production.

WHAT'S THE ISSUE?

The decision to pull out after more than five decades comes at a turbulent time in Gulf politics, with Doha under a boycott by former neighbouring allies including Saudi Arabia for 18 months.

SAUDI -QATAR CONFLICT :

- Saudi Arabia has been leading a regional blockade on Qatar that has seen trade and travel links severed over its alleged support for terrorism.
- OPEC members, Saudi Arabia and the United Arab Emirates, and fellow Arab states Bahrain and Egypt have imposed a political and economic boycott leading to the regional blockade on Qatar since June 2017.
- However, according to Qatar, Saudi led blockade is aimed to impinge on its sovereignty.

IMPACT ANALYSIS :

- Qatar will continue to produce oil and seek deals in countries including Latin America's top oil producer Brazil.
- It could signal that smaller producers are dissatisfied with the cartel's dominance by Saudi Arabia and Russia. So a group of small producers exiting the cartel will decrease OPEC's influence in the oil market.

PRELIMS BITS : OPEC :

- The Organization of the Petroleum Exporting Countries (OPEC) is a permanent, intergovernmental Organization, created at the Baghdad Conference in 1960, by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.
 - OPEC is a cartel that aims to manage the supply of oil in an effort to set the price of oil on the world market, in order to avoid fluctuations that might affect the economies of both producing and purchasing countries.
 - According to its statutes, OPEC membership is open to any country that is a substantial exporter of oil and that shares the ideals of the organization.
 - Currently, the Organization has a total of 15 Member Countries. The current OPEC members are the following: Algeria, Angola, Ecuador, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, the Republic of the Congo, Saudi Arabia, United Arab Emirates, and Venezuela.
 - Ecuador suspended its membership in December 1992 but rejoined OPEC in October 2007.
 - Indonesia suspended its membership in January 2009, reactivated it again in January 2016, but decided to suspend its membership once more in November 2016.
 - Gabon terminated its membership in January 1995. However, it rejoined the Organization in July 2016.
- OPEC has its headquarter in Vienna, Austria



(Scan the QR code to watch the video)

Notes

Geopolitical importance of Island States



(Click on the above image to watch the video)

WHAT IS NEWS?

- Varied but **simultaneous developments** took place in the recent period in **different corners of the Indo-Pacific**.
- They are indicative of the renewed **geopolitical importance** (International Relations) of the **island states**.

WHY ARE ISLAND STATES SIGNIFICANT?

- At the dawn of the **modern maritime age four centuries ago**, control of critically-located islands became important.
- It was part of the **rivalry between European powers in the Atlantic and the Indo-Pacific**.
- Islands helped the **replenishment of supplies, positioning of troops and ammunition**, and the host ship to do repairs and maintenance.
- **Island dominance** became the key to securing the sea lines of communication.
- The **Anglo-American** maritime dominance over the last two centuries helped limit the contestation for the islands.
- An exception was an **imperial Japan's challenge** in the decades before the Second World War.
- Today, **the rise of China** has brought the island states back to the center stage of major power politics.

WHAT ARE THE RECENT DEVELOPMENTS?

Maldives

- The Indian **PM visited Maldives** recently for the **swearing-in of its new president Ibrahim Mohamed Solih**.
- The visit underlined the renewed warmth in the relations between the **two countries**.
- **Under Solih's predecessor**, Abdulla Yameen, India's relations with the Maldives rapidly deteriorated.
- The contestation between **India and China in the Maldives** got intertwined with the democratic struggle of the opposition parties to end **Yameen's autocracy**.

- They kept demanding an Indian intervention as Yameen trampled over the parliament and the judiciary, but Delhi held back.

SRI LANKA

- They kept demanding an Indian intervention as Yameen trampled over the parliament and the judiciary, but Delhi held back.
- The intersection of **Sino-Indian rivalry** with domestic politics is also witnessed in the neighboring Sri Lanka.
- The international community and India too was surprised at the recent decision of the **Sri Lankan President to dismiss Prime Minister Ranil Wickremesinghe**.
- **India, the US and EU**, emphasised the importance of due constitutional process and supported parliament test.
- But the Chinese **ambassador in Colombo** was quick to show up at the **newly-installed PM Rajapaksa's office** to congratulate him.
- Notably, during the decade-long rule (2004-15) by **Rajapaksa**, Sri Lanka seemed to steadily **move closer to China's orbit**.
- Symbolizing its influence, China won the strategic contracts to build the **Colombo port city**.
- It also got the contract for the construction of a new port at **Hambantota** in the southern part of the island.
- **India, in turn**, appeared to lose its historic primacy in the island state.

PAPUA NEW GUINEA

- Further east, Papua New Guinea very recently hosted the forum for **Asia-Pacific Economic Cooperation's annual summit(APEC)**
- It brought leaders from **20-odd countries** from America to China, Malaysia to Japan and Canada to Chile to this island state.
- Here too, there is rise in **Chinese commercial and political presence** in the last few years.
- There was also a speculation that **China might be in quest of a military base in Papua New Guinea**.
- So **Australia and the US** moved in to announce that they will fund the development of the **port facilities**.
- This would be developed in the **Manus Island to the north-east of the main island**.
- Notably, Imperial Japan had occupied Manus and built a military base there in **1942**.
- **Australia also joined the US, Japan and New Zealand** in unveiling a project to provide **electricity to 70% of the island population by 2030**.

► But countries have largely failed to anticipate the intensity of China's power projection.

HOW DOES THE FUTURE LOOK FOR THE INDO-PACIFIC?

► Contestation for influence in the island states of the Indo-Pacific has just begun.

► The European colonial powers could easily prevail over natives of the strategic island territories.

► But unlike then, in Indo-Pacific, today's major powers have to deal with the more complex domestic politics of the island nations.

► The ruling regimes in these islands have agency and the capacity to play one power against the other.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS2 - international relations

WHY IN NEWS?

The 2018 G20 Summit is being held in the city of **Buenos Aires, Argentina**. Nineteen leaders of the world's biggest economies and a representative of the European Union will be holding a meeting on November 30 as part of the G20 summit.

G20 SUMMIT 2018:

It will be the 13th meeting of Group of Twenty (G20) and the first G20 summit to be hosted in South America.

ABOUT G20:

Formed in 1999, the G20 is an international forum of the governments and central bank governors from 20 major economies.

- Collectively, the G20 economies account for around 85 percent of the Gross World Product (GWP), 80 percent of world trade.
- To tackle the problems or the address issues that plague the world, the heads of governments of the G20 nations periodically participate in summits. In addition to it, the group also hosts separate meetings of the finance ministers and foreign ministers.
- The G20 has no permanent staff of its own and its chairmanship rotates annually between nations divided into regional groupings.
- The first G20 Summit was held in Berlin in December 1999 and was hosted by the finance ministers of Germany and Canada.

OBJECTIVES OF G20 :

The Group was formed with an aim of studying, reviewing, and promoting high-level discussion of policy issues pertaining to the promotion of international financial stability.

- The forum aims to pre-empt balance of payments problems and turmoil on financial markets by improved coordination of monetary, fiscal, and financial policies.
- The forum seeks to address issues that go beyond the responsibilities of any one organisation.

MEMBER COUNTRIES OF G20 :

The members of the G20 consist of 19 individual countries plus the European Union (EU).

- The 19 member countries of the forum are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, United Kingdom and the United States.
- The European Union is represented by the European Commission and by the European Central Bank.

WHERE IS THE G20 HEADQUARTERS?

- The G20 does not have permanent offices or employees.
- The country that presides over the group (in an year) takes care of all the organization and the logistical coordination of the meetings.

WHAT WILL BE THE PRIORITIES OF THE G20 2018 AGENDA?

- The G20 2018 will focus on the future of work, which implies thinking about an education that provides – equal opportunities, infrastructure for development, and a sustainable food future.

THE G20 TROIKA

Every year, when a new country assumes the presidency (Argentina in 2018), it works hand in hand with the previous presidency (Germany) and the next presidency (Japan) in what is known as the troika. This ensures continuity in the group's agenda.

TWO WORKING CHANNELS OF G20 –FINANCE CHANNEL AND SHERPAS CHANNEL :

The Finance Channel covers meetings between finance ministers and central bank presidents, as well as meetings of their second lines and working groups on financial issues. In their meetings throughout the year, they focus on global collaboration in financial and monetary policies, which may include issues such as investment in infrastructure, fiscal policy, inclusion and financial regulation.

- The Sherpas Channel, meanwhile, covers non-financial issues, such as political commitment, the

fight against corruption, development, gender equality, trade and energy, among others. Each member country of the G20 is represented at the meetings by the Sherpa and the minister that corresponds to the subject. The Sherpa then advises his Head of State or Government on the issues discussed and brings the dialogue to the relevant working groups.

INDIA AND G20 2018 SUMMIT :

► India has presented a **nine-point programme to take action** against fugitive economic offenders at the ongoing G20 Summit in Argentina.

WHO WILL BE THE NEXT G20 PRESIDENT AFTER ARGENTINA?

- Japan will chair the G20 in 2019.
- Saudi Arabia will chair the G20 in 2020.
- Italy will chair the G20 in 2021.
- India will chair the G20 in 2022.

WHAT IMPACT DOES THE G20 HAVE?

The G20 is the most important forum for international cooperation. During the meetings, the main challenges of the world are discussed and the main policies are coordinated at the global level. In the face of an uncertain international context, international cooperation is key, and thus the G20 acquires even more relevance.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)
European Union's One Hour Rule to Tackle Terrorism

UPSC PERSPECTIVE

GS Paper 3 (Internal Security)

WHY IN NEWS?

- ▶ The European Commission has recently proposed new rules "on preventing the dissemination of terrorist content online", which generally means that national authorities should give the online platforms no more than one hour to delete terror-related videos and posts.
- ▶ If the service provider systematically fails to remove those fanatic and bigotry content, they could face financial penalties of up to 4% of its overall turnover of the last business hour, which is quite an enormous amount.

HOW IT WAS DEVISED:

Terrorist propaganda and recruitment on social media are one of the objects of an international study under the EU project PROTON, which aims – how changes in society and in the environment affect organized crime and terrorist networks. The overall purpose is to offer new prevention tools for policymakers.

Researchers at Hebrew University, Jerusalem, Israel are running on this project named PROTON. They came to draw a conclusion that these online platforms are a very big tool to profuse these fanatic contents over the internet.

Loan Wolf attack has become a good way to influence citizens across the world for terrorism and other fanatic ideologies via online and digital media.

Terrorists' organizations are prominently driven by some particular ideologies. Presence of these organizations over the internet and other online platforms has become widespread and albeit organizations are being quelled by forces but the ideologies are somehow left in vestige across the physical and digital world.

Some infamous Terrorists' organizations across the world:

- ▶ Al-Qaeda
- ▶ Al-Shabaab – Somalia
- ▶ Boko-Haram at Nigeria
- ▶ Al-Nusra at Syria
- ▶ Ansar Dine at Mali

GOOGLE RESPONDED POSITIVELY:

Google has responded positively: "We share the European Commission's desire to react rapidly to terrorist content and keep violent extremism off our platforms. We welcome the focus the Commission is bringing to this and we'll continue to engage closely with them, member states and law enforcement on this crucial issue."

MOZILLA DEcriED It PUBLICLY:

Mozilla, the internet giant, publicly denounced the Commission's proposal, 'A Poor Step', in fighting illegal content online. Mozilla stated, "It would undermine due process online; compel the use of ineffective content filters, strengthen the position of a few dominant platforms while hampering European competitors and ultimately, violating the EU's commitment in protecting fundamental rights." Mozilla aided that the bigger corporations may be able to devise such a filter in order to comply the proposal because of having ample resources, ranging from personnel to coders. But, the small organizations, like some startups may face paucity of resources in order to do so.

RESEARCHERS' FURTHER ADDENDUM:

Michael Wolfowicz, research fellow at the university on the project stated, "We found that terrorists were significantly more likely to post about the attacks by friends or family members in the months prior to their own attack."

The study also highlighted that terrorists' posts are shared much more than those by non-violent radical counterparts

The 'One-Hour Rule' proposed by the commission is far from being the solution. "One reason is that content removal may be used as evidence by radical groups to demonstrate legitimacy to their claims against the West as not really liberal or democratic, and that it specifically sets out to hamper the free speech of their particular groups.

This may lead sympathizers and fence sitters to further align themselves with the radical ideology or group, especially if their own content has been removed, leading them to personally identify with the group-based grievance.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS2 - International relations

WHY IN NEWS?

- Prime Minister of Bhutan Lotay Tshering arrived in India on 27th December for a three-day visit.
- The Visit is significant because it is taking place during the Golden Jubilee year of the establishment of formal diplomatic relations between the two countries.

HIGHLIGHTS OF VISIT :

- PM Modi announced Rs 4,500 crore financial assistance to Bhutan for its 12th FYP.
- PM Modi and Bhutanese PM Lotay Tshering held wide-ranging talks.
- They also reviewed progress of hydroelectric projects in the Himalayan nation.
- Indian assistance will account for 15% of the outlay for the five-year-plan.

BHUTAN'S HYDRO POWER HOPES :

- Bhutan wants to finish Hydro power projects in Bhutan and start selling electricity to India.
- The Mangdechhu hydroelectric project is a 720MW run-of-river power plant being built in central Bhutan.
- It is one of the 10 hydroelectric projects planned by Bhutan to generate 10,000MW hydropower by 2020 with support from India.
- Bhutan also wants India to start the construction of the 2,560 MW Sunkosh Reservoir project and the 2,640 MW Kuri Gongri reservoir project along with India.
- Both these projects are not only mentioned as priority projects by Bhutan but also as one of its key economic priorities.

- On the other hand, the process from the Indian side is getting slow due to the financing concerns for the projects.
- While hydro projects built with India will provide the bulk of the revenue for the Bhutan government, the projects by themselves cannot generate many jobs for the Bhutanese youth.
- This is especially so because Bhutan has the highest proportion of youth to the total population in South Asia.

FUTURE HOPES :

- Bhutan sees India as the largest potential source of investment for its economic diversification programmes.
- India also serve as a largest market for their products and services that come out of this diversification.
- Bhutan is also on the path of demanding an exemption from India's Central GST in the future.
- This is because CGST is affecting the export of Bhutanese goods to India, both in terms of price and procedures at the border.
- Thus the relationship of India with Bhutan should go deeper than its engagement in the hydropower sector into other dimensions of mutual interest.
- As, Bhutan remains India's closest and most reliable friend, it is now time to take this relationship to the next level.



(Scan the QR code to watch the video)

Notes

CHINA TAIWAN RELATIONS: INDEPTH ANALYSIS

IN ENGLISH



(Click on the above image to watch the video)

China – Taiwan Relations, One China Policy, Role of USA

WHY IN NEWS?

Relationship between China and Taiwan in recent times has become stressful

HISTORY OF CHINA-TAIWAN RELATIONS:

- First non-settlers in Taiwan were Austronesian tribal people, came from the modern southern China. From 1624 to 1661 – China was a Dutch (present day as The Netherlands) colony.
- From 1683 to 1895 – Taiwan was ruled by China. In the 17th century, migrants arrived from China into Taiwan. In today's Taiwan, large proportion of the population has their trails into the China.
- In 1895, Japan won the first Sino-Japanese war and in the aftermath of the war, China ceded Taiwan to Japan.
- After WW2, Japan surrendered Taiwan to China back.
- In the next few years, the Kuomintang government in China was beaten back by the communist armies and this happened under Mao-Zedong and they fled to Taiwan in 1949. The mainland chinese, accounted only for 14%, had a hold on Taiwan politics in the later years.

CHINA'S VIEW ON TAIWAN:

- In 1980s, relationship between China and Taiwan improved and China asserted that there is only One China and Taiwan is an unalienable part of China.
- "One Country, Two Systems" Formula was put by China to Taiwan and Taiwan agreed on it. But, the dissent was on a clarification that which entity is the governing body in China. Under the above formula, Taiwan agreed not to seek independence from China, agreeing to be part of China.
- Use of Non-Peaceful means – In the agreement, it was mentioned that China can furnish use of non-peaceful measures in order to keep Taiwan tact.

ROLE OF USA:

- USA is considered to be Taiwan's important friend and ally.
- 1979: US ended diplomatic relations with Taiwan in the path of improving relations with China.
- Taiwan Relations Act – This was revoked by USA. Act promised Taiwan to supply weapons. USA stressed that any attack by China onto Taiwan will be near attack over the USA.
- Taiwan Travel Act – Greater engagement between Taiwan and USA was proposed to promote.
- Ongoing Trade War – USA has sought an opportunity of the trade war to pressurize onto Taiwan.

POSITION TAKEN BY TAIWAN:

- China is miffed at USA by its diplomatic shift to influence Taiwan. China is asking other nations to not recognize Taiwan as a sovereign nation. Many African and Central American countries have withdrawn relations with Taiwan.
- Taiwan don't want to jeopardize the trade between the two nations. In recent referendum, Taiwan rejected a proposal to rename the olympics' team as Taiwan as current Taipei.
- Status Quo – Taiwan wants to maintain a status quo with China, not to seek independence from China.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 2 - international relations

WHY IN NEWS?

- Australia recognises West Jerusalem as Israeli capital. However, Australia's embassy would not move from Tel Aviv, until a peace settlement was achieved.

BACKGROUND

- Israel established West Jerusalem as its capital in 1950. The Israeli government needed to invest heavily to create employment, building new government offices, a new university, the Great Synagogue and the Knesset building.
- West Jerusalem became covered by the Law and Administrative Ordinance of 1948, subjecting West Jerusalem to Israeli jurisdiction.
- President Donald Trump's administration announced recognition of Jerusalem as Israel's capital on December 6, 2017.

WHAT MAKES JERUSALEM, SO HOLY ?

- It is one of the main pilgrimage destinations for millions of Christians worldwide who visit the empty tomb of Jesus and seek solace and redemption in prayer at the site.
- Muslims believe the Prophet Muhammad travelled here from Mecca during his night journey.
- Jews believe that this was the location of the foundation stone from which the world was created, and where Abraham prepared to sacrifice his son Isaac.

MAINS BITS: WHAT IS THE TUSSELE WITH JERUSALEM?

- Jerusalem is in ways symbolic of the Israel-Palestine conflict itself.
- The tussle centres on who gets to control the ancient city that is sacred to Jews, Muslims and Christians.

- After the end of the First Arab-Israel War in 1948, Jerusalem was partitioned into West and East, under Israeli and Palestinian control respectively.
- But in 1967, during the Six-Day Arab-Israel War, Israel snatched East Jerusalem from Jordanian forces.
- Israel's Parliament also declared the territory had been "annexed to Israel" and Jerusalem had been "reunited".
- The predominantly Palestinian population in the east lives under full Israeli control, but cannot vote in parliamentary elections.
- This marginalised the Palestinians, who wanted East Jerusalem to be their capital under the "two-state solution".
- Israel was undeterred by the refusal of the international community to endorse the annexation.
- It further added over 200,000 Jewish settlers to the once-almost entirely Arab East Jerusalem.
- Meanwhile, in 2016, the UN reaffirmed that Jerusalem's Palestinian territories were under "hostile occupation".
- The international community considers east Jerusalem illegally occupied by Israel.
- Notably, foreign embassies to Israel are in Tel Aviv and not Jerusalem.

India for its part has traditionally backed a two-state solution, and assured that the Indian embassy would stay in Tel Aviv.

WHY AUSTRALIA DO SO ?

- Australia prime minister, Scott Morrison trying to gather vote of Jewish and Christian conservatives in Australia.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS2 - international relations

WHY IN NEWS?

- The President of the Republic of Maldives Ibrahim Mohamed Solih visited India on a state visit from 16-18 December 2018.
- This is the first foreign visit by President of Maldives after assuming office in November 2018.

OUTCOME OF THE VISIT :

The two countries signed the following Agreements/ MoUs/Joint Declaration of Intent during the visit :

- Agreement on the facilitation of visa arrangements.
- Memorandum of understanding on cultural cooperation, improve the ecosystem for agribusiness.
- Cooperation in the field of communications technology and electronics.
- Countries agreed to work together in the following areas, health, mutual legal assistance, investment promotion, human resource development, and tourism
- India announced financial assistance of US\$ 1.4 billion in the form of budgetary support, currency swap and concessional lines of credit to fulfill the socio-economic development programmes of the Maldives.
- The Maldives reaffirmed its "India-First Policy", and commitment to working together closely with India.
- Both countries agreed on the importance of maintaining peace and security in the Indian Ocean Region.
- The two countries reaffirmed their commitment and support for increased cooperation in combating terrorism.

TROUBLE FOR MALDIVES :

- Direct debt, or direct bilateral government-to-government debt is one thing, but there is on top of that sovereign guarantees for the private sector.

➤ And there is also on top of that our state owned enterprises who have gone into debt



Prelims bits - Location of Maldives :

MAINS BITS : IMPORTANCE OF THE MALDIVES FOR INDIA -

- The Maldives is an important aspect of India's 'Neighbourhood First' policy.
- Strategically located in the Indian Ocean, Maldives archipelago comprising 1200 coral Islands lies next to key shipping lanes which ensure uninterrupted energy supplies to countries like China, Japan, and India. More than 97% of India's international trade by volume and 75% by value passes through the region.
- As the pre-eminent South Asian power and a 'net security provider' in the Indian Ocean region, India needs to cooperate with the Maldives in the security and defense sectors.
- India is also a preferred destination for Maldivians for education, medical treatment, recreation, and business.
- Maldives is also a member of SAARC. It is important for India to have the Maldives on board to maintain its leadership in the region.
- Since China's naval expansion into the Indian Ocean - Maldives significance has steadily grown and now it's at the heart of international geopolitics.
- There is significant Indian diaspora in the Maldives. Innumerable Indians work across the hospitality, education, and health-care sectors of the Maldives economy.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 2 - International relations

WHY IN NEWS?

- US President Donald Trump's decided to pull all American troops out of Syria and reduce by half the US forces in Afghanistan, which marks the end of a prolonged phase of American military interventions in the Middle East and South Asia.
- This has predictably upset both the Washington establishment and America's global allies.

BACKGROUND - REASONS FOR US INTERVENTIONS IN SYRIA :

- The main reason for US intervention (According to the U.S) in Syria was the apparent use of chemical weapons by Assad outside the Syrian capital Damascus on August 21, 2013.
- The US has blamed the Syrian government forces for the deaths of hundreds of civilians in the attack, an accusation vehemently denied by Syria.
- But in reality the U.S wanted to topple the Bashar Al Assad Government.

WHAT DO SYRIA'S KURDS WANT ?

- Kurds make up between 7% and 10% of Syria's population. Before the uprising against President Bashar al-Assad began in 2011 most lived in the cities of Damascus and Aleppo, and in three, non-contiguous areas around Kobane, Afrin, and the north-eastern city of Qamishli.
- In January 2014, Kurdish parties - including the dominant Democratic Union Party (PYD) - declared the creation of "autonomous administrations" in the three "cantons" of Afrin, Kobane and Jazira.
- In March 2016, they announced the establishment of a "federal system" that included mainly Arab and Turkmen areas captured from IS.
- The declaration was rejected by the Syrian government.

US AND KURDS :



- The U.S. has only 2,000 troops in Syria. they were not directly involved in the ground battle and were supporting the Syrian Democratic Forces, a rebel group led by Kurdish rebels who were in the forefront of the fight against the IS.

WHY DOES RUSSIA SUPPORT SYRIA AND PRESIDENT ASSAD?

- The story goes back at least to Cold War times, when the Soviet Union gained influence in Syria in the 1970s, giving aid and arms.
- But after the collapse of the Soviet Union in the 1990s, its influence in Syria reduced.
- In 2000, Vladimir Putin became president of Russia and Bashar al-Assad became president of Syria.
- They did not have a close relationship, but in the mid-2000s, Putin began to expand the Russian military.

REASONS FOR EXIT :

- US president claims that the physical infrastructure of the IS caliphate is destroyed and the U.S. can leave the war against the remnants of the jihadist group to the Syrian government and its main backers, Russia and Iran.
- The caliphate is actually destroyed — the IS has lost 95% of the territory it once controlled and is now confined to narrow pockets on the Iraqi-Syrian border.
- The U.S. would also not like to get stuck in Syria forever. It is basically Russia's war.
- The U.S. is already stranded in Afghanistan (for 17 years) and Iraq (over 15 years) without a way out.

REACTIONS AFTER USA DECISION :

- The United States Defence Secretary James Mattis has resigned from his post on 21st December 2018.

► His resignation came after his disagreement with the US President Donald Trump over the withdrawal of US troops from Syria.

IMPACT ON RUSSIA :

- A geopolitical victory for Russia.
- Once Syria becomes a stable country it will become an asset for Russia in foreign policy.
- Russia's stature in the world has grown.

IMPACT ON INDIA :

- Trump's move will undermine the war against the Islamic State, help legitimise the Syrian ruler Bashar al Assad, and boost his backers in Moscow and Tehran.
- In Afghanistan, the decision to downsize troop presence comes at a moment when Washington has embarked on direct talks with the Taliban brokered by Pakistan.

► If the president does not change his mind, Delhi will have to take into account the consequences for India's western neighbourhood, especially in Afghanistan, where Washington has been fighting the longest war in American history.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 2 - international relations & International organisations

WHY IN NEWS:

► India has signed the ascension agreement to the Trans Regional Maritime Network (T-RMN). The multilateral construct comprises of 30 countries and is steered by Italy.

ABOUT THE TRANS REGIONAL MARITIME NETWORK :

- The network facilitates information exchange on the movement of commercial traffic on the high seas.
- The information is available primarily through the Automatic Identification System (AIS) fitted on merchant ships with more than 300 gross registered tonnage as mandated by the International Maritime Organisation.
- The AIS information comprises name, MMSI number, position, course, speed, last port visited, destination and so on. This information can be picked up through various AIS sensors including coastal AIS chains and satellite based receivers.

SIGNIFICANCE:

- Such multilateral agreements are necessitated due to the large traffic in the Indian Ocean which cannot be entirely monitored by any one nation.
- This is a significant move as it will help the Indian Navy keep a watch over the vast Indian Ocean and boost maritime security of the country. India is part of several such agreements, which help the nations to coordinate and share information to keep tabs on suspicious activities and illegal trade across the oceans.

STEPS TAKEN TO GUARD INDIA'S INTERESTS

- The Information Fusion Centre (IFC) for the Indian

Ocean Region (IOR) is established with the vision of strengthening maritime security in the region by building a common coherent maritime situation picture and acting as a maritime information hub for the region.

- The IFC has been established at the Navy's Information Management and Analysis Centre (IMAC) in Gurugram.
- IMAC is the single point centre linking all the coastal radar chains to generate a seamless real-time picture of the nearly 7,500-km coastline.

Prelim Bits : What is White Shipping Agreement

- White Shipping Agreement (WSA) is an information network protocol that allows the navies of two countries to exchange information about ships in their oceanic territories. Ships would be classified into white (commercial ships), grey (military vessels), and black (illegal vessels).
- India already has bilateral White Shipping Agreements with 36 countries.



(Scan the QR code to watch the video)

Notes

NEW FRAMEWORK TO COMBAT TERRORISM BY UNITED NATIONS



(Click on the above image to watch the video)

UN launches new framework to strengthen fight against terrorism

UPSC PERSPECTIVE

Objective: UN Global Counter-Terrorism Coordination Compact

Subjective: Anti-terror measures undertaken by UN.

WHY IN NEWS?

► UN Secretary-General Antonio Guterres has launched a new framework to combat the scourge of international terrorism.

6 GOALS TO COUNTER TERRORISM

- The focus should be on prevention of terrorism
- Strengthen Counter-Terrorism.
- Respect for human rights
- Invest energy in our youth, like providing education and employment to them.
- Strengthen the role of the United Nations, cause , UN sets a global criteria to fight terrorism.
- Countries should come together and fight terrorism.
- Terrorist organization continues to twist religion to serve their ends.
- Far right groups are also using the Internet as a platform to mobilize support across borders

UN GLOBAL COUNTER-TERRORISM COORDINATION COMPACT

► It is the framework for an agreement between the UN, 36 organizational entities, the International Criminal Police Organisation (INTERPOL) and the World Customs Organisation, to better serve the needs of Member States when it comes to tackling the scourge of international terrorism.

TASK FORCE

► The UN Global Counter-Terrorism Coordination Compact Task Force will replace the Counter-Terrorism Implementation Task Force, which was established in 2005 to strengthen UN system-wide coordination and coherence of counter-terrorism efforts.

precious metals and graphite are not allowed to be exported to Tehran.

WHY SUCH MOVE?

- This year's Global Terrorism Index was released by the Institute for Economic and Peace.
- It indicates that despite a 27 % fall in the number of deaths from acts of terrorism worldwide, the impact of terrorism remains widespread, with 67 countries experiencing deadly attacks.
- This is the second highest recorded number of countries in the past twenty years.



(Scan the QR code to watch the video)

Notes

SCIENCE AND TECHNOLOGY

3D Printing In Pharma Sector & Manufacturing Drugs On Demand



(Click on the above image to watch the video)

Manufacturing Drugs In Demand

UPSC PERSPECTIVE

- **Prelims:** 3D printing, Drug API
- **Mains:** Scope of small drug manufacturing facility via 3D printing

CHANGES IN MANUFACTURING PROCESSES

- Unlike in the days before the Industrial Revolution, when shoemakers, tailors, carpenters and other artisans made every last bit of their products by hand, very few production facilities today are capable of producing the entire finished product from scratch.

IMPACT ON PHARMA INDUSTRY

- The approach has given us the ability to manufacture products at a scale that was completely inconceivable before the invention of these industrial machines.
- It has left us at the mercy of the vast intercontinental supply chains that feed into these production facilities so that minor variations in quality and unpredictable disruptions in production anywhere in the chain of suppliers can have a devastating effect up the line.
- This is of particular concern in the context of the pharmaceutical industry where non-continuous, "batch" processes are the heart and soul of the drug manufacturing process.
- Most manufacturers produce the active pharmaceutical ingredient (API) using molecular fragments obtained from different sources.
- The API is then mixed with excipients in a separate facility and the final drug product is formulated at yet another plant.

THE SCOPE OF 3D PRINTING IN THE PHARMA SECTOR

- Revolutionise industrial production.
- Machines like this will be able to synthesize many drugs.
- Organs can be made.

DESKTOP MANUFACTURING SYSTEM

- Small patient populations
- Short shelf life
- Manufacture essential drugs on demand in rural medical facilities will be invaluable
- Can modify medicine according to our demand.

Important Findings Observed By MIT

- A team of scientists from Massachusetts Institute of Technology (MIT) were able to demonstrate how a manufacturing platform that combined the synthesis and final-product formulation of a drug into one continuous process would work.
- They built a single refrigerator-sized unit that was capable of synthesizing four commonly used drug molecules.
- Benadryl (used in the treatment of the common cold)
- Lidocaine (a local anaesthetic and antiarrhythmic drug)
- Diazepam (a central nervous system depressant better known as Valium)
- Fluoxetine hydrochloride, an antidepressant that is widely prescribed under the name Prozac.

IMPEDIMENTS IN APPLYING THIS TECHNOLOGY

- Regulatory framework.
- Pharmaceutical facilities through tests and periodic inspections.

WAY FORWARD

Given the apparent benefits of this new technology, the government would do well to figure out how to redesign regulations to facilitate its adoption



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

GS 3 - science and technology

WHY IN NEWS?

Chinese probe, the Chang'e-4, has entered a planned orbit "to prepare for the first-ever soft landing on the far side of the moon". China launched the Chang'e-4 probe earlier this month, carried by a Long March-3B rocket.

BACKGROUND:

► The Moon is tidally locked to Earth, rotating at the same rate that it orbits our planet, so the far side is never visible from Earth. The probe, the Chang'e-4, is expected to make the first-ever soft landing on the far side of the Moon. Previous spacecraft have seen the far side of the Moon, but none has landed on it.

► The far side of the moon known as 'South Pole-Aitken Basin' still remains a mystery among space scientists and by sending a probe there, China will outdo the historical achievements of the US and USSR.

ABOUT THE MISSION

► Chang'e 4 is the fourth mission in the country's lunar mission series which is being named after the Chinese moon goddess.

► The tasks of the Chang'e-4 probe includes low-frequency radio astronomical observation, surveying the terrain and landforms, detecting the mineral composition, and measuring the neutron radiation and neutral atoms to study the environment on the far side of the moon.

OBJECTIVES OF THE MISSION

- To measure lunar surface temperature over the duration of the mission.
- Measure the chemical compositions of lunar rocks and soils.
- Carry out low-frequency radio astronomical observation and research.
- Study of cosmic rays.

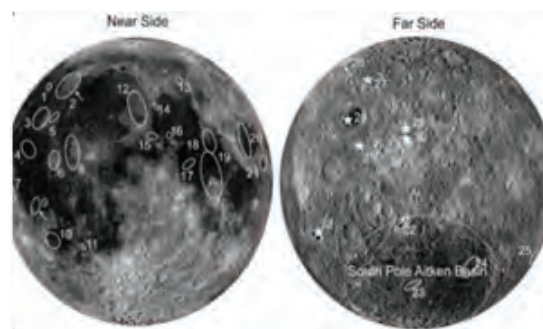
► Observe the solar corona, investigate its radiation characteristics and mechanism, and to explore the evolution and transport of coronal mass ejections (CME) between the Sun and Earth.

SIGNIFICANCE OF THE MISSION

► According to experts, landing on the far side of the moon is undoubtedly one of the most challenging missions ever launched by any of the world's superpowers.

HISTORY OF CHINA'S LUNAR EXPLORATION PROGRAMMES:

► China began their lunar exploration program in 2007 by launching a simple lunar orbiter named 'Chang'e 1'. The second mission in the program named 'Chang'e 2' was launched in 2010, and it was later followed by the third mission 'Chang'e 3'. 'Chang'e 3' made headlines all around the world as it marked the first soft moon landing since 1976.



(Scan the QR code to watch the video)

Notes

M.S. SWAMINATHAN CALLS GM CROPS A FAILURE



(Click on the above image to watch the video)

Swaminathan Calls GM Crops A Failure



UPSC PERSPECTIVE

Prelims Level: BT Cotton.

Mains Level: Advantages and Limitations of GM crops (Science and Technology)

WHY IN NEWS?

A research paper co-authored by leading agriculture scientist M.S. Swaminathan, which describes Bt cotton as a 'failure,' was criticised by India's Principal Scientific Adviser as 'deeply flawed'.

M.S. Swaminathan – Father of Green Revolution in India by Genetic Engineering.

BT CROPS: A BIG FAILURE

- ▶ The article 'Modern Technologies for Sustainable Food and Nutrition Security' was recently published.
- ▶ It is authored by P.C. Kesavan and Prof. Swaminathan, senior functionaries of the M.S. Swaminathan Research Foundation (MSSRF).

WHAT ARTICLE REVEALED?

- ▶ The article is a review of crop development in India and transgenic crops — particularly Bt cotton, the stalled Bt brinjal as well as DMH-11, a transgenic mustard hybrid.
- ▶ The latter two have been cleared by scientific regulators but not by the Centre.
- ▶ It states that the precautionary principle (PP) has been done away with and no science-based and rigorous biosafety protocols and evaluation of GM (Genetically Modified) crops are in place.

- ▶ BT crops have failed as a sustainable agriculture technology and have, therefore, also failed to provide livelihood security for cotton farmers who are mainly resource-poor, small and marginal farmers.

WHAT IS A GM CROP?

- ▶ A GM or transgenic crop (putting desired gene in crop by artificial method) is a plant that has a novel combination of genetic material obtained through the use of modern biotechnology.

DO WE NEED GM CROPS?

Yes and why?

- ▶ Higher crop yields.
- ▶ Reduced farm costs.
- ▶ Increased farm profit.
- ▶ Improvement in health and the environment.
- ▶ Crop Protection.
- ▶ Food Security.

No and why?

- ▶ **Lack of clarity:** It is clear that the technology of genetic engineering is an evolving one and there is much, especially on its impact on human health and environment that is yet to be understood properly. The scientific community itself seems uncertain about this.
- ▶ **Threat to domestic crops:** One of the concerns raised strongly by those opposing GM crops in India is that many important crops like rice, brinjal, and mustard, among others, originated here, and introducing genetically modified versions of these crops could be a major threat to the vast number of domestic and wild varieties of these crops.
- ▶ There is also a potential for pests to evolve resistance to the toxins produced by GM crops and the risk of these toxins affecting nontarget organisms. There is also the danger of unintentionally introducing allergens and other anti-nutrition factors in foods.

GM FOR ABIOTIC STRESSES

- ▶ Abiotic stresses (insects) refer to environmental factors that could meddle with plant yield, as opposed to 'biotic' stressors such as insects.
- ▶ GE may be deployed to manage against Abiotic stresses.

BT (BACILLUS THURINGIENSIS)

- ▶ BT is a soil dwelling bacterium generally used in biopesticide.
- ▶ Bt cotton was created through the addition of genes encoding toxin crystals in the Cry group of endotoxin.

- When insects attack and eat the cotton plant the Cry toxins are dissolved due to the high pH level of the insect's stomach.
- In 2002, a joint venture between Monsanto and Mahyco introduced Bt cotton to India.
- Genetic Engineering appraisal committee (GEAC) is the central agency to allow field trials of BT/GM crops.

DON'T BELIEVE THE ANTI-GMO CAMPAIGN

- The U.S. National Academy of Sciences observed in 2016 that "Bt in maize and cotton from 1996 to 2015 contributed to a reduction in the gap between actual yield and potential yield under circumstances in which targeted pests caused substantial damage to non-GE varieties and synthetic chemicals could not provide practical control".
- Data from a large number of peer-reviewed publications have shown that, on average, GM technology adoption has reduced pesticide use by 37%, increased crop yield by 22%, and increased farmer profits by 68%.
- Yield gains and pesticide reductions are larger for insect-resistant crops than for herbicide-tolerant crops.
- Yield and profit gains are higher in developing countries than in developed countries.
- Data from a billion animals fed on GM corn have not indicated any health hazards.
- Those in the Americas and elsewhere consuming Bt corn or soybean for over 15 years have not reported any health issues.
- Even reports based on faulty studies in experimental animals that stated that GMOs cause cancer were withdrawn.

PERFORMANCE IN INDIA -

- The yields hovering around 300 kg/ha at the time of introduction of Bt cotton (2002) have increased to an average of over 500 kg/ha, converting India from a cotton-importing country to the largest exporter of raw cotton.
- The moratorium on Bt brinjal is the most unfortunate step taken by the government in 2010. Bangladesh has used India's data to successfully cultivate Bt brinjal. Reports indicate that as many as 6,000 Bangladeshi farmers cultivated Bt brinjal in 2017 with no issues at sight.
- India has one of the strongest regulatory protocols for field trials of GM crops. It is an insult to the integrity of our scientists to indict the Review Committee on Genetic Manipulation and the Genetic Engineering Approval Committee as lacking in expertise and having vested interests.

WAY FORWARD

- GM technology is not a magic bullet. It needs to be evaluated on a case-by-case basis.
- There is definitely scope for improvement in terms of technology and regulatory protocols.
- But it is time to deregulate the Bt gene and lift the embargo on Bt brinjal.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

GS3 - science and technology

WHY IN NEWS?

Google is experiencing a "moral and ethical" crisis. That's the view of hundreds of employees at the tech company, who is protesting the development of a censored search engine for internet users in China.

CONTROVERSY OVER DRAGONFLY SEARCH ENGINE:

► Dragonfly is an Internet search engine app being prototyped by Google that is designed to be compatible with China's state censorship provisions. Unlike a previous search engine designed by Google for use in China, Dragonfly would not notify users that results or search terms have been censored.

RISKS AND REWARDS OF DRAGONFLY:

► Since March 2010, when Google stopped servicing China via Google.cn, China's internet user population has increased by 70%. It currently clocks in at 772 million users, but could grow to 1.4 billion users with time. This means that, for Google, who makes most of its revenue from advertisements run on its search engines, the potential profits of re-entering the Chinese search engine market are enormous.

► Rise of the domestic Chinese search engines - Baidu is considered as Google's counterpart in China.



(Scan the QR code to watch the video)

Notes

EFFECTS OF DRUGS DISCHARGE INTO YAMUNA RIVER



(Click on the above image to watch the video)

Effects of Drugs Discharged into the Yamuna

UPSC PERSPECTIVE

- **Objective level:** Drugs mentioned in the news card.
- **Subjective level:** Water pollution crisis faced by India and how it can be toned down.

WHY IN NEWS?

- A recent study reveals the effects of the discharge of **drug-containing effluents** into the Yamuna.
- **Source:** Yamunotri Glacier in Himalaya.
- **Mouth:** Ganges River in Allahabad.

DISCHARGE OF DRUG-CONTAINING EFFLUENTS CAN CAUSE DRUG RESISTANCE

- By studying nine different pharmaceutical active compounds in the Yamuna River, researchers have now pointed out that it can "**possibly cause chronic toxicity**" to aquatic life and to humans who use this water.
- As our body does not use the entire quantity of the drug we take, **most of it is excreted and end up in aquatic systems** via domestic sewage.
- The researchers from **IIT-Delhi and National Mission for Clean Ganga** collected water samples from six sites across the **25 km river stretch** during three different seasons (November 2010, April and July 2011).
- Using different extraction processes, the pharmaceutical residues in the water were recovered and **analysed**.

FINDINGS OF THE RESEARCH

- The team looked at six over-the-counter drugs (aspirin, paracetamol, ibuprofen, ranitidine, caffeine, diclofenac) and three prescription drugs (carbamazepine, codeine, diazepam).
- Ibuprofen and paracetamol were found at a **high concentration of 1.49 and 1.08 microgram per litre** respectively.
- The highest concentration of pharmaceutical compounds was located downstream Wazirabad at the point where Najafgarh drain joins the Yamuna.
- This drain is the largest polluter of the river

contributing more than **50% of the total discharge into the Yamuna**.

- Previous studies have shown that even a small concentration of ibuprofen could cause an **antagonistic effect on aquatic organisms**.
- Studies have also shown that ibuprofen exposure could increase **cyanobacterial growth in the water**.
- **Caffeine was found in high concentration** in most of the sites. Caffeine is used as a stimulant in medicine; residue from beverages and other food products may be a contributor.
- Even prescription drugs such as **carbamazepine** were found in the samples with the **highest level of 1.35 microgram per litre**.

HAZARDS

- Though the individual levels were small and cannot cause acute toxicity to the marine life, the mixture of compounds **can cause chronic toxicity**.
- We need more studies on the **pharmaceutical residues as this is** found to be an emerging problem in many countries.
- This not only affects the biodiversity of the a river, but can also lead to the rise of superbugs (a strain of bacteria that has become resistant to antibiotic drugs)

WAY FORWARD

- **Uncontrolled discharge** of drug-containing effluents in our rivers and other water bodies can potentially **make many microbes drugs-resistant**.
- Our **sewage treatment** plants are not designed to **take care** of these pharmaceutical compounds.
- **Also, we have** no guidelines or specific rules in place about this.
- There is a **need to sensitize the government** and this report is the first step toward it.



(Scan the QR code to watch the video)

Notes

ETHANOL BLENDING: KNOW EVERYTHING ABOUT IT



(Click on the above image to watch the video)

Ethanol Blending

UPSC PERSPECTIVE

- **Prelims:** Biofuels, Crops from which biofuels can be generated.
- **Mains:** India's current biofuel policy and its unsustainability.
- **Mains Paper 3:** Agriculture | Food processing & related industries in India.

WHAT IS ETHANOL BLENDING?

- The **ethanol blending** is the process of **mixing petrol with ethanol**.
- The mixture is called as **Ethanol Fuel / Gasohol** which is considered as a quasi-renewable energy.

BENEFITS

- It reduces the **vehicular emissions**, especially carbon monoxide emissions.
- It is **cheaper than petrol** as it is cheaper to manufacture.
- It decreases a **nation's dependence** on foreign oil.
- Ethanol has a higher **octane rating** than ethanol-free petrol.
- In case of India, **ethanol production** can give a higher sugarcane price for the farmers which can help in rural prosperity.

ETHANOL BLENDED PETROL (EBP) PROGRAMME

- Ethanol Blended Petrol (EBP) Programme was launched by the Central **Government in 2003** to promote the use of alternative and environment friendly fuels. **It was intervention sought to reduce import dependency** for energy requirements and environment friendly measure to reduce vehicular pollution

RECENT STEPS TAKEN TO PROMOTE ETHANOL BLENDING

- The Union government increased price of ethanol by almost **Rs.3 per litre to Rs.43.70** in an attempt to cut India's oil import dependence as well as to give higher price for sugarcane.

- India, which is more **than 80% dependent** on imports to meet its oil needs, has mandated blending of up **to 10% ethanol in petrol**, but inadequate availability has restricted this to below 4%.

INDIA'S PLANS

- India should increase the use of biofuels.
- The government intends to raise ethanol blending in petrol **to 20% by 2030** from the current 2-3%.

But Not A Good Idea

Water resource food availability will be effected.

WATER USAGE

- **Water footprint**, that is water required to produce a **litre of ethanol**, includes rainwater at the root zone used by **ethanol-producing plants such as sugar cane, and surface, groundwater**, and fresh water required to wash away pollutants.

LAND RESOURCES

- **Land requirement** is likely to put a stress on other crops and has the potential to increase food prices.

BIOFUEL POLICY

- India's biofuel policy **stipulates** that fuel requirements must not compete with food requirements and that only **surplus food crops** should be used for fuel production.
- Producing ethanol from crop residue will be a good alternative but the annual capacity of required bio-refineries **are stipulated to be 300-400 million litres**, which is still not enough to meet the 5% **petrol-ethanol** blending requirement.

WAY FORWARD

- **Increasing petrol-ethanol** blending does not seem viable in the current scenario
- **Concerted efforts** need to be made to either increase sugarcane yield and decrease water usage through better irrigation practices, or increase the ethanol production capacity of bio-refineries
- **Trying to increase** blending without these efforts can encroach upon land and water available for food production.





(Click on the above image to watch the video)

UPSC PERSPECTIVE

- GS 3 - science and technology

WHY IN NEWS ?

- The Union Cabinet, chaired by Prime Minister Narendra Modi, on December 28, 2018 approved the Gaganyaan Programme, first Indian Human Spaceflight Initiative of the Indian Space Research Organisation (ISRO).

DETAILS OF THE MISSION :

- The GSLV Mk-III rocket will be used to carry the orbital module which will have necessary provisions for sustaining a 3-member crew for the duration of the mission.
- The project will cost ₹10,000 crore
- 7 Days In Space by 3 Vyomanauts

OBJECTIVES OF THE MISSION:

- Enhancement of science and technology levels in the country
- A national project involving several institutes, academia and industry
- Improvement of industrial growth
- Inspiring youth
- Development of technology for social benefits
- Improving international collaboration

HISTORY OF THIS PLAN MISSION :

- Till date, ISRO has spent Rs. 173 crore developing critical technologies for human space flight.
- The plan was first pitched in 2008 but was put on the backburner as the economy and Indian rockets experienced setbacks.
- In 2014, India tested a Crew Module Atmospheric Re-entry Experiment (CARE), where a 3,745 kg space capsule - a prototype of the crew module that will be used by the Indian astronauts - was launched into the atmosphere on the first flight of the GSLV Mk III and then safely recovered from the Bay of Bengal.
- Since then, ISRO has also mastered the art of making a

spacesuit which will be used by Indian astronauts when they get sent into space from Sriharikota.

- Earlier this year in 2018, ISRO carried out a crucial Pad Abort Test on July 5, when a 12.5-ton crew module was tested to make sure in case of an accident on the launchpad, the crew can be rescued safely.

SPACESUIT FOR THE GAGANYAAN MISSION

- The orange-coloured prototype space suit was developed by the ISRO over the past two years at Vikram Sarabhai Space Centre in Thiruvananthapuram.
- The suit can hold one oxygen cylinder, allowing an astronaut to breathe in space for 60 minutes.

TWO UNMANNED MISSIONS BEFORE 2022 :

- Two unmanned missions before the final mission. The first unmanned test-flight will be launched in December 2020.
- The second unmanned test will be conducted in July 2021 and finally the human space flight will be launched in December 2021.

SIGNIFICANCE OF THE MISSION FOR INDIA :

- Gaganyaan Programme will establish a broader framework for collaboration between ISRO, academia, industry, national agencies and other scientific organizations.
- It is expected to generate employment and train human resources in advanced technologies.
- It will inspire large number of young students to take up science and technology careers for national development.
- It will increase India's soft power in the world.

HOW MANY COUNTRY MANAGED TO DO THIS ?

- The successful implementation of the programme will make India the fourth nation in the world to launch a Human Spaceflight Mission. So far, only the USA, Russia and China have launched human spaceflight missions.

OTHER RELATED FACTS :

- Rakesh Sharma became the first Indian cosmonaut to be sent into outer space in 1984 Sharma, himself went to space on a Soviet spacecraft called Soyuz T11. The spacecraft led him to a space station called Salyut 7.



(Scan the QR code to watch the video)

GENERIC-ONLY MODEL: CONCEPT AND CONCERNS

(Click on the above image to watch the video)

ISSUE?

- There is an increased push by the government for generic drugs, for affordable healthcare.

WHAT ARE GENERIC DRUGS?

A generic drug is identical — or bio-equivalent — to a brand name drug in dosage form, safety, strength, route of administration, quality, performance characteristics and intended use.

Although generic drugs are chemically identical to their branded counterparts, they are typically sold at substantial discounts from the branded price.

WESTERN COUNTRIES AND INDIA

- In the West, brand names are given to researched and patented first-in-market innovator drugs.
- After the expiry of patent period, other companies launch generics of the innovator drug with just the pharmaceutical salt name at a hugely discounted price.
- So, the only difference between a brand name drug and its generic version is the price.

► In India, where to get a drug license through political or bureaucratic connections by corrupt means is as easy as buying vegetables in the market.

Western Countries- Any medicine is made with lot research and a huge amount of money is invested into it.

- They take patent for it .
- These are branded drugs.
- They are costly and they will recover costs from it.
- When the patent of the particular company gets expired, then rest of the company copies the manufacturing process of the branded company giving rise to the Generic drug.

The Generic drug – drug is copied from another company, they only differ in price (they are cheap) no compromise is made on the quality needs

- The only difference between a brand name drug and a generic is that brand name drugs are very expensive, while generics are far cheaper and are sold

by just the pharmaceutical salt name. This is true for brand name drugs and generics in most developed countries.

INDIA:

The issue in India is not about expensive brand name drugs versus cheaper generics, as in the West, but one of quality drugs versus suspect quality drugs. The active chemical substance is the same, the medical profile of generics is believed to be equivalent in performance.

- The generic drug has the same Active Pharmaceutical Ingredient (API) as the original, but it may differ in characteristics such as manufacturing process, formulation excipients, color, taste, and packaging.

EMPHASIS ON GENERICS?

- To cut down on out-of-pocket expenditure.
 - Cheap.
 - In the Indian market, generics hold a whopping 75% share.
 - Pradhan Mantri Bhartiya Jan Aushadhi Pariyojana (PMBJP).
- PMBJP stores have been set up to provide generic drugs, which are available at lesser prices.

CONCERNS?

- India ranks third in the global pharma market (10% of global sales)
 - India exports a lot of medicines because they are cheap.
 - NSQ (Not Of Standard Quality)- 10 % of drugs that India export is apt to its Quality.
 - Central Drugs Standard Control Organisation (CDSCO)-don't have proper regulations to inspect generic medicines.
 - 67000 drugs are made in India from which only 15000-16000 are being inspected by regulating bodies.
 - Drugs were recalled
 - US Food and Drug Administration (US FDA) guidelines
 - Quality control mechanism
- Branded generics are also generics with a brand name, plus the quality assurance from well-known companies like Cipla, Sun or Dr Reddy's. Doctors have come to trust these companies and their brands over time.

Risk?

- NCD burden
- Low-quality drug delays-After the patient takes the generic drug, the amount of drug in the bloodstream is measured. If the levels of the drug in the

bloodstream are the same as the levels found when the brand name drug is used, the generic drug will work the same

► Substandard medicines-We should not compromise with the quality of the medicine.

WAY FORWARD

► Global best standards, not lowest price of the medicine.

► Medication should be affordable, superior-quality drugs.

► The 'generics-only model' approach needs a critical reassessment.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 3 - science and technology

WHY IN NEWS ?

- ▶ Indian Space and Research Organization (ISRO) has recently launched communication satellite GSAT-7A on board the Geosynchronous Satellite Launch Vehicle F-11 (GSLV F-11).
- ▶ GSLV F-11 is the seventh flight of GSLV Mk-II and is equipped with indigenously developed cryogenic upper stage engine.
- ▶ The satellite is nicknamed as 'angry bird' as it will enhance Indian Air Force (IAF) capabilities.
- ▶ It is heaviest satellite launch in GSLV's Mk-II version launch vehicle.

How many dedicated communication Satellites ISRO has launched for the Military ?

- ▶ In September 2013, Isro launched GSAT-7 (Rukmini), a communication satellite exclusively for Navy to monitor Indian Ocean Region up to 2,000 nautical miles and provide real-time inputs to Indian warships, submarines, and maritime aircraft.
- ▶ The IAF is also likely to get another satellite Gsat-7C, within a few years that will boost its network-centric operations.

SIGNIFICANCE

- ▶ The satellite will give a boost to the strategic communication and networking capabilities of the IAF.
- ▶ GSAT-7A will enable superior real-time aircraft-to-aircraft communication and between aircraft and base station.
- ▶ GSAT-7A is expected to boost the IAF's network-centric warfare capabilities by interlinking all ground-based radars, airborne early warning and control aircraft for surveillance, maintain air superiority, gather intelligence by detecting aircraft, vessels and other vehicles in long range.

GENERATIONARY ORBIT :

- ▶ Geostationary orbit is a type of geosynchronous orbit of a satellite whereby it moves with the same speed as the rotation of the Earth. Because it orbits at the same speed as Earth revolves, a geostationary satellite seems to be stationary if seen from the surface of the Earth.
- ▶ Geostationary orbit is also known as geostationary Earth orbit and geosynchronous equatorial orbit.

PRELIMS BITS : GSAT-7A -

- ▶ **Weight:** 2250 Kg
- ▶ **Orbit:** Super Synchronous Orbit (Orbit beyond Geosynchronous Orbit)
- ▶ **Mission Life:** 8 years
- ▶ GSAT-7A is the 35th communication satellite built by ISRO.
- ▶ GSAT-7A is an advanced communication satellite with a Gregorian Antenna.
- ▶ The satellite will operate in the Ku band (This frequency range is often used for satellite communications).



(Scan the QR code to watch the video)

Notes

SATURN TO LOSE ITS RINGS ?



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 3 - science and technology

WHY IN NEWS ?

- ▶ New NASA research confirms that Saturn is losing its iconic rings at the maximum rate estimated from Voyager 1 & 2 observations made decades ago.
- ▶ The rings are being pulled into Saturn by gravity as a dusty rain of ice particles under the influence of Saturn's magnetic field.

COMPOSITION AND STRUCTURE:

- ▶ Saturn's rings are made up of billions of particles ranging from grains of sand to mountain-size chunks. Composed predominantly of water-ice, the rings also draw in rocky meteoroids as they travel through space.
- ▶ Though Saturn appears surrounded by a single, solid ring when viewed by an amateur astronomer, several divisions exist. The rings are named alphabetically in the order of discovery. Thus the main rings are, from farthest from the planet to closest, A, B and C. A gap 2,920 miles wide (4,700 kilometers), known as the Cassini Division, separates the A and B rings.
- ▶ The rings themselves contain a number of gaps and structures. Some are created by Saturn's many small moons, while others continue to puzzle to astronomers.

IS IT ONLY THE SATURN TO HAVE RINGS?

- ▶ Saturn is not the only planet in the solar system to have rings — Jupiter, Uranus and Neptune also contain faint ring systems— but with its satellites spanning three-quarters of the Earth-moon distance (175,000 miles or 282,000 km), it is by far the largest and most visible.

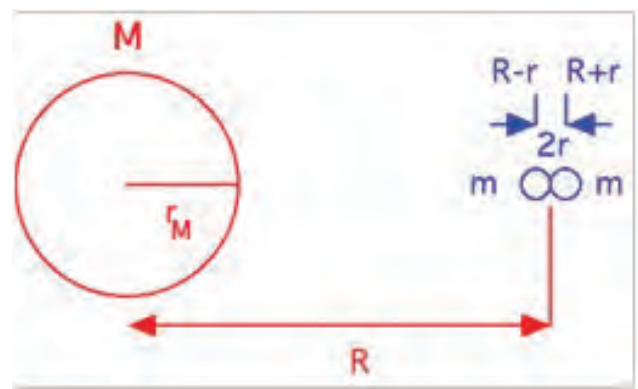
WHY DO ALL GAS GIANT PLANETS HAVE RINGS ?

- ▶ The outer planets (Jovian planets or gas giants) are Jupiter, Saturn, Uranus and Neptune.

- ▶ The outer planets all have rings but you can only see Saturn's because Saturn's ring reflect on the sun and Saturn has the biggest ring in the whole solar system which is 175,000 miles, that is about three quarters from our planet to our moon.
- ▶ Outer planets have rings because they are far away from the sun where there is more debris.

FORMATION OF RING & THE ROCHE LIMIT :

- ▶ It is the distance from the centre of the celestial body where the tidal forces are so strong that any other celestial body approaching this distance would get deformed instantly and the varying orbital speed would cause it to form a ring around the body.



PRELIMS BITS : ABOUT SATURN

- ▶ Saturn is the sixth planet from the Sun in our solar system.
- ▶ In terms of size it is the second largest planet after Jupiter.
- ▶ Saturn is named after the Roman god of agriculture.
- ▶ It is composed mostly of hydrogen, and helium.
- ▶ Saturn's rings for long have been considered as its most dramatic feature.
- ▶ Saturn has at least 62 moons.
- ▶ Titan, Saturn's largest moon, and the second-largest in the Solar System, is larger than the planet Mercury, although less massive, and is the only moon in the Solar System to have a substantial atmosphere. (Jupiter's moon GANYMEDE is the largest natural satellite of any planet in the solar system)

Summary of missions to the outer Solar System					
System	Jupiter	Saturn	Uranus	Neptune	Pluto
Spacecraft					
Pioneer 10	1973 flyby				
Pioneer 11	1974 flyby	1979 flyby			
Voyager 1	1979 flyby	1980 flyby			
Voyager 2	1979 flyby	1981 flyby	1986 flyby	1989 flyby	
Galileo	1995-2003 orbiter; 1995, 2003 atmospheric				
Ulysses	1992, 2004 gravity assist				
Cassini-Huygens	2000 gravity assist	2004-2017 orbiter; 2005 Titan lander			
New Horizons	2007 gravity assist				2015 flyby
Juno	2016- orbiter				
Jupiter Icy Moons Explorer	2022- Planned orbiter				
Europa Clipper	2025- Planned orbiter				



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 3 - science and technology

WHY IN NEWS?

► ISRO's Vikram Sarabhai Space Centre (VSSC) at Thumba here has completed the design for the Small Satellite Launch Vehicle (SSLV), the 'baby rocket' billed as the quickest way to space for small-size satellites.

ABOUT :

- SSLV or the 'baby rocket' will provide on-demand access to space, with the rocket assembly taking a mere 15 days and minimum personnel to do it.
- It will be used exclusively for small satellites such as nanosats and cubesats.
- The **payload capacity of the SSLV will be 500-700 kilograms** in the Lower Earth Orbit (LEO), less than one-third the weight the PLSV can carry.
- It has three stage solid propulsion system, and like the PSLV and GSLV, can accommodate multiple satellites, albeit smaller ones.
- **Unlike the PSLV and GSLV, the SSLV can be assembled both vertically and horizontally.**

SIGNIFICANCE :

- The small satellite industry has witnessed a **manifold spike** in the last few years and with latest innovations in nanotechnology, the size of the satellites is expected to further decrease in the future. Further, what was previously inconceivable for even big satellites, is being undertaken very smoothly and efficiently now by small satellites.
- With the huge number of small satellites outpacing the available launchers, many small satellites have to remain grounded as they do not find a launcher due to large queue and waiting time.
- A dedicated launcher for small satellites, not only **would cost reduce drastically** but also there will be more opportunities to focus on primary research and

delineate big satellite launch from small satellite launch. "Antrix is looking at 50/60 launches SSLVs a year and in the next 10 years, we see a business potential of around \$300 million annually," Rakesh Sasibhushan, CMD Antrix -the commercial arm of the ISRO, said.

PRELIMS BITS : ABOUT ISRO 's LAUNCH VEHICLES :

India's Launch Vehicles

	SLV-3	ASLV	PSLV-XL	GSLV-MK II	GSLV-MK III
Height	22.7m	23.5m	44m	49m	43.43m
First flight	Aug. 1980	Mar. 1987	Oct. 1994	Apr. 2001	June, 2017
Vehicle	SLV-3	ASLV	PSLV-XL	GSLV-MK II	GSLV-MK III
Lift-off weight	17t	39t	320t	414t	640t
Payload mass	40kg	150kg	1,860kg	2,200kg	4,000kg
Propulsion	All solid	All solid	Solid & liquid	Solid, liquid and cryogenic	Solid, liquid and cryogenic
Orbit	Low Earth Orbit (2,000km)	Low Earth Orbit (2,000km)	Sun Synchronous Polar Orbit (475km)	Geosynchronous Transfer Orbit (35,786km)	Geosynchronous Transfer Orbit (35,786km)

Small Satellite Launch Vehicle (SSLV)



Height:	34 metres
Diameter:	2 metres
Lift-off mass:	120 tonnes
Capability:	500 kg payload to LEO
Inaugural flight:	Expected in mid-2019



(Scan the QR code to watch the video)

Notes

Troubling Power Sector



(Click on the above image to watch the video)

Troubling Power sector

ISSUE

► The power sector is stuck in a vicious cycle and hence the revival must start with **restoring the financial health of the Discoms**(Distribution Company)

PROBLEMS SURROUNDING THE POWER SECTOR

- **The pricing of power** leaves Discoms in India with a peculiar dilemma, wherein the more they sell, the more they lose.
- Poor financial condition of the Discoms made them to demand less **power from the power generating companies**(Gencos) in the form of Power purchase agreements.
- This in turn is impacting on the financial stability of **power generating companies**.
- The banking industry too is saddled with the additional problem of potential **NPAs on account of non-performing Gencos**.
- Thus, there is a vicious circle that has afflicted the energy sector and if the issues are not addressed expeditiously, **there could be a serious crisis at hand that can impact the entire economy**.
- Thus, there is a vicious circle that has afflicted the energy sector

UDAY SCHEME

- UDAY provides for the financial turnaround and revival of Power Distribution companies (**DISCOMs**), wherein states were to take over **75% of Discom debts** as on September 30, 2015.
- This was to provide fiscal space to the **Discoms** and "improve" their balance sheets.
- Most of the Discoms failed to carry out mandates which includes critical activities like **reduction of AT&C**(aggregate, technical and commercial) losses, elimination of Average Revenue Realized (ARR) & Average Cost of Supply (ACS) gap, feeder metering, price rationalisation etc.
- Out of all UDAY States, **13 have actually reported higher Aggregate Technical & Commercial(AT&C)** losses as compared to previous yearS.

► The States' Gross Fiscal Deficit to GDP Ratio got increased by 0.7%.

No new power purchase agreements(PPAs) are being floated even though there is demand for power.

WAY FORWARD

- **Separate feeder lines**, auditing, strong action against defaulters and irrational pricing mechanisms.
- Other states can learn from the **successful models**, such as in Gujarat, and make out their own plan through intensive discussions with all **the stake holders**.
- Coal production will need to be ramped up substantially and the **Coal Project Monitoring Group** will need to be activated to facilitate faster clearances.
- **A high-level empowered committee** needs to be set up to examine each stressed projects, empowered to settle disputes and work out a rehabilitation package.
- Finally, the governmental push for **the renewable energy sector** should not burden the power generating companies with the rising cross-subsidisation of electricity.
- **Cross subsidization** is the practice of charging higher prices to **one group of consumers** to subsidize lower prices for another group.
- **Promoting renewable energy** is laudable, but this has to be borne by the society (through taxation) and not by the entities that are already in trouble.



(Scan the QR code to watch the video)

Notes

Relook at the BharatNet Project



(Click on the above image to watch the video)

WHY IN NEWS?

- The BharatNet project failed to deliver its intended purpose which calls for a complete overhaul of the implementation machinery.
- Telecom Secretary recently asked the states to utilise the Bharat Net project's rural broadband infrastructure.

BHARATNET PROJECT?

- National Optical Fiber Network (NoFN) which is now renamed as BharatNet project was launched in 2012.
- The project aims to provide affordable broadband services to citizens and institutions in rural and remote areas, in partnership with the States and the private sector.
- It is implemented by Bharat Broadband Network Limited (BBNL) – a special purpose vehicle under the Telecom Ministry and is Government of India's ambitious rural internet connectivity programme.
- It has subsumed all the ongoing and proposed broadband network projects. The project is being executed by BSNL, RailTel and Power Grid and is being funded by Universal service Obligation Fund (USOF).
- It aims to connect all of India's households, specifically rural households through demand, affordable high speed internet connectivity to fulfill the objectives of Digital India programme in partnership with the states and the private sector.

PROGRESS SO FAR

- Seven years have passed since the National Optical Fibre Network (rechristened BharatNet) project was first envisaged.
- The objective was to connect over 2.5 Lakh gram Panchayats through high-speed broadband.
- Already, 1.15 Lakh gram Panchayats have been connected.
- The physical execution of the project is scheduled to be completed by March 2019.

- However, when it comes to actual connectivity and utilisation, BharatNet has achieved little.
- This is despite thousands of Crores of taxpayers' money having already been spent.

SHORTFALLS?

- The onus of preventive and corrective maintenance of the optical fibre portion connecting gram Panchayats is with BSNL (Bharat Sanchar Nigam Ltd).
- The responsibility of remaining network elements lay with other agencies.
- The lack of ownership by BSNL and inability of BBNL in ensuring timely project implementation has cost the nation a great deal.
- Though a clear utilisation target has already been set, the actual utilisation on the ground is well less than 10% of the target.
- Poor planning, lack of monitoring and co-ordination between the two organisations lead to ineffective implementation.
- It points to the lack of professionalism on the part of BBNL and BSNL.

WHY IS BHARATNET IMPORTANT?

- Top consumers (Indians) globally who use internet.
- Private telecom companies, including Reliance Jio, have announced plans to connect over 1,100 cities with optical fibre, which will cater to the urban consumers.
- But BharatNet is critical to ensure that rural India also benefit from the digital dividend.
- Attract billions of dollars in investments.
- Help train a million youth for new-age jobs.
- Facilitate delivery of e-governance, e-health, e-education, e-banking and other such services.

WAY FORWARD

- Action against the officials lacking in discharge of duties.
- State governments must be brought on board to ensure that the project.
- Complete overhaul of the BharatNet implementation.
- The industry and government need to team up on projects aimed at bolstering communications infrastructure in the country.



(Scan the QR code to watch the video)

INDIAN NAVY GETS SUBMARINE RESCUE SYSTEM



(Click on the above image to watch the video)



(Scan the QR code to watch the video)

Notes

UPSC PERSPECTIVE:

- GS3 - science and technology

WHY IN NEWS ? :

- The Indian Navy has inducted its **first Deep Submergence Rescue Vehicle (DSRV) System** at the Naval Dockyard in Mumbai. With this, the Indian Navy joins a select group of naval forces in the world that boasts of this niche capability.

ABOUT :

- A deep-submergence rescue vehicle (DSRV) is a type of deep-submergence vehicle used for rescue of downed submarines.
- India has recently joined an elite group of Countries with DSRV – Australia, China, U.K, Norway Sweden, Italy, France, Japan, Russia, U.S.
- DSRV is used to rescue crew members stranded in submarines that get disabled. The DSRV can be operated at a depth of 650 meters and can hold around 15 people.
- The latest on all fronts, the vessel has a Side Scan Sonar (SSS) for locating the position of a submarine in distress at sea, provide immediate relief by way of posting Emergency Life Support Containers with the help of Remotely Operated Vehicles (ROV) and then rescue the crew using the DSRV itself.





GENE EDITING IN A HUMAN EMBRYO

(Click on the above image to watch the video)

Gene Editing In A Human Embryo

UPSC RELEVANCE

- Mains Paper 3: Science & Technology | developments & their applications & effects in everyday life.
- MCQ's
- Ethics

WHY IN NEWS ? :



Genome summit in Hong Kong.

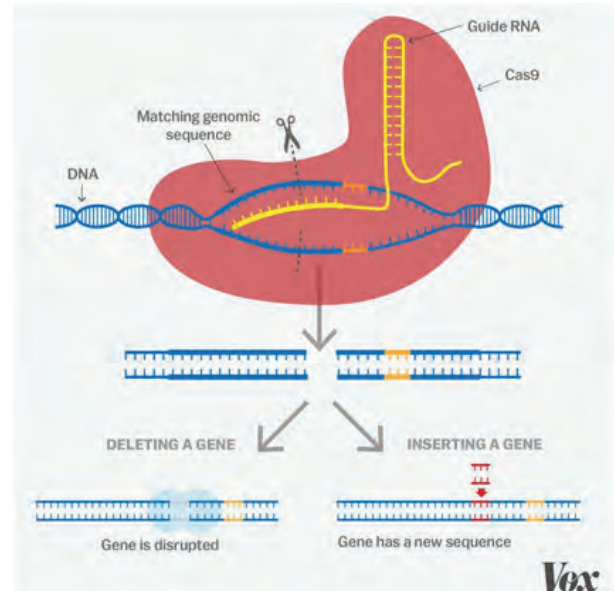
A Chinese researcher, He Jiankui recently made a claim that he had altered the genes of a human embryo that eventually resulted in the birth of twin girls.

HIS RESEARCH?

- The researcher worked with seven volunteered couples, wherein each couple had one partner who was Human Immunodeficiency Virus (HIV) -positive.
- The aim was to ensure that HIV is not transmitted to the child.
- He used the Crispr Cas9 technology, which works like a genetic cut-and-paste tool, that allows researchers to permanently modify genes in living cells and organisms.
- Under the technology, he edited the genomes of 16 embryos to disable a gene, CCR5, which allows HIV to infect cells.
- He then used the in-vitro fertilisation (IVF) technique to implant edited embryos, that lead to the birth of genetically edited babies.
- The changes so made are inheritable and passed on to descendants.

THE TECHNOLOGY USED?

- CRISPR (short for Clustered Regularly Interspaced Short Palindromic Repeats) technology is a relatively new, and the most efficient tool for gene "editing" developed in the last one decade.



- The technology replicates a natural defence mechanism in bacteria to fight virus attacks, using a special protein called Cas9.
- The specific location of the genetic codes that need to be changed is identified on the DNA strand.
- Using the Cas9 protein, which acts like a pair of scissors, the specified location is cut off from the strand.
- A DNA strand, when broken, has a natural tendency to repair itself.
- Scientists intervene during this auto-repair process, supplying the desired sequence of genetic codes that binds itself with the broken DNA strand.

HOW USEFUL IT HAS BEEN SO FAR?

- The most promising use of the CRISPR technology is in the treatment of diseases.
- In the case of the newborn Chinese babies, the genes were "edited" to ensure that they do not get infected with HIV.
- Leading scientists in the field have for long been calling for a "global pause"

CONCERNS?



- Complications to create a "designer" baby.
- Disabling of the CCR5 gene is known to lead to higher risks such as heightened susceptibility to the flu.
- Targeting Since the changes are inheritable.
- Population composition - Genetic editing in humans with customised traits could empower eugenicists and racists, thereby encouraging selective breeding of the human population by eliminating undesirable traits.

REGULATION

- Gene editing is banned in most countries.
- In the UK, where gene editing of embryos is permitted only after strict regulatory approval.
- Hence, many people from the scientific community have asked for a moratorium on editing human embryos.
- The scientific, commercial and ethical implications of this technique have to be researched further before getting it implemented on a large scale.

ETHICAL DILEMMA

- Verification (we don't have any proof)
- Precision
- Approval (not taken any approval)
- Consequence



(Scan the QR code to watch the video)

Notes

Global Hackathon on Artificial Intelligence



(Click on the above image to watch the video)

Global Hackathon On Artificial Intelligence

UPSC PERSPECTIVE:

- Prelims level: AI, Details Of The Hackathon
- Mains level: Applications Of AI & Its Future In India.
- Mains Paper 3: Science & Technology | Indigenization of technology & developing new technology.

WHY IN NEWS?

- With the vision to further expand the idea of 'Artificial Intelligence, AI for All' articulated in the National AI Strategy, NITI Aayog has organized hackathons.
- The Hackathon was announced at the AI conference organized by NITI Aayog, in partnership with the ORF.
- It aims to source sustainable, innovative and technologically-enabled solutions to address various challenges in the development space.
- NITI Aayog has partnered with Perlin – a Singapore-based AI start up – to launch the Hackathon.
- It is inviting developers, students, startups and companies to develop AI applications to make significant positive social and economic impact for India.

ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans. Some of the activities computers with artificial intelligence are designed to include:

- Speech recognition
- Learning
- Planning
- Problem solving

HACKATHONS

A hackathon is a gathering where programmers collaboratively code in an extreme manner over a short period of time. Hackathons are at least a few days - or over a weekend - and generally no longer than a week. While working on a particular project, the idea is for each developer to have the ability and freedom to work on whatever he/she wants.

NITI AAYOG

- The Government had replaced Planning Commission with institution NITI Aayog (National Institution for Transforming India). The reason had mentioned that Specific to the planning process, there is a need to separate as well as energize the distinct 'process' of governance from the 'strategy' of governance. NITI Aayog in partnership with Singapore based Artificial Intelligence (AI) start up going to launch "AI 4 All Global Hackathon".
- Its objective is to promote awareness and develop solutions to address challenges in AI algorithms and not compromising data privacy.

BACKGROUND

- NITI Aayog organized its first hackathon, 'MoveHack' in August, on the sidelines of the Global Mobility Summit 2018.
- It was aimed to garnering cutting-edge mobility applications.
- Over 2,000 submissions were received out of which the Top 10 teams were awarded at the summit
- NITI Aayog organises hackathons to source sustainable, innovative and technologically-enabled solutions to address various challenges in the development space. Solving human problems by AI.

THE MAIN PURPOSE OF AI 4 ALL GLOBAL HACKATHON

- Promoting awareness and subsequently develop solutions that deliver the twin benefit of efficient computing to address the infrastructure challenges
- Supporting meaningful social, economic and technological advancements directed at making people's lives better.
- Ideas for use cases of multi-party computation in areas such as Healthcare, Education, Agriculture, Urbanization, Financial Inclusion all these carried in the first section.
- All ideas to be matured and developed in the second stage with a focus on privacy-preserving AI and distributed computing.

PHASES OF HACKATHON

- The hackathon will be run two stages with Stage One ending 15 January 2019 and Stage Two, which will only include shortlisted participants from the previous stage, will conclude on 15 March 2019
- The first stage will invite ideas for use cases of multi-party computation in areas such as Healthcare, Education, Agriculture, Urbanization, Financial Inclusion.
- The second stage will call for these ideas to be matured and developed, with a focus on privacy preserving AI and distributed computing.

- Winners will share in a prize pool worth USD \$50,000 in both cash and non-cash rewards.
 - Participants will also get mentorship and support from the hackathon co-sponsors, including the opportunity to scale and implement their AI applications.
- Registrations are presently open for the 'AI 4 All Global Hackathon' website at: Registrations are presently open for the 'AI 4 All Global Hackathon' website at:

AI 4 ALL GLOBAL HACKATHON

The jury shall comprise of the leaders from the technology and policy ecosystem including NITI Aayog CEO Amitabh Kant, Head at AI Foundations Lab IBM Michael Witbrock,

Director of Technology at Sequoia Capital Anandamoy Roychowdhary, Partner at Accel Partners Prahbakar Reddy, Co-founder & Faculty Director of International Innovation Corps Professor Anup Malani, Ery Punta Hendraswara and Perlin CEO Dorjee Sun.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

Microbiome Research

UPSC PERSPECTIVE

- **Static Part:** What is Microbiome research, significance of Human Microbiome.
- **Dynamic and Current:** Indian project on Microbiome research, concerns, potential and challenges ahead.

WHY IN NEWS?

- From **November 19 to 22**, Pune hosted an international conference on **Microbiome Research**.
- India has a vast potential for microbiome research but the field of study is still in its infancy.

WHAT IS "HUMAN MICROBIOME"?

- The human body carries diverse communities of microorganisms, which are mainly bacterial. These are referred to as "human microbiome".
- These organisms play a key role in many aspects of host physiology, ranging from **metabolism of otherwise complex indigestible carbohydrates** and fats to producing essential vitamins.
- While some bacteria are associated with disease, others are actually extremely **important for your immune system, heart, weight and many other aspects of health**.
- Not all microbiomes are harmful. They help maintaining immune systems and acts as a first line of defense against pathogens.

SIGNIFICANCE OF RESEARCH ON THE HUMAN MICROBIOME

- Research on the human microbiome has thrown light on various aspects how different parts of the human body are occupied by **characteristic microbial communities**.
- It throws light on how various factors contribute in shaping the composition of the microbiome, including the **genetics, dietary habits, age, geographic location and ethnicity**.
- These studies laid a strong foundation to decipher the microbiome's implications **on health and a wide range of disease**.

- These organisms play a key role in many aspects of host physiology, ranging from metabolism of otherwise complex indigestible carbohydrates and fats to producing **essential vitamins, maintaining immune systems and acting as a first line of defense against pathogens**.
- Scientists have conducted a **meta-analysis on gut microbiota of healthy Indian individuals** and compared it with that of individuals from other parts of the world.

INDIA'S PROJECT

- Scientists at NCSS have conducted a meta-analysis on **intestinal microbiota (community of commensal, symbiotic and pathogenic microorganisms)** of healthy Indian individuals and compared it with that of individuals from **other parts of the world**.
- It shows that the Indian population harbours a distinct **gut microbial community**, which, scientists calls for an in-depth investigation of the Indian microbiome. Various research groups in the country are working on the human microbiome.
- What India lacks is a **national microbiome initiative** similar to those in other countries.
- Now, a high-level committee at the Department of Biotechnology has shown a keen interest in the proposed project.
- The project will include collection of saliva, stool and skin swabs of **20,000 Indians across various ethnic groups from different geographical regions**.

NEED FOR RESEARCH

- India has a large number of **tribal populations** largely unaffected by "modern" diet and lifestyle.
- India provides for a wide range of research with more than **4,500 ethnic groups** and presence of two global biodiversity **hotspots (Himalayan range and Western Ghats)**.
- The prevalence of lifestyle-related disorders such as **obesity and diabetes** has been known to be significantly lower compared to the non-tribal (**urbanized**) **populations across the globe**.
- Hence, scientists say, a study on the tribal population would help improve knowledge of evolution of the **mutualism between gut microbiota and the host**.



(Scan the QR code to watch the video)

CHEAP HYDROGEN PRODUCTION: SOON A REALITY



(Click on the above image to watch the video)
Hydrogen Production Using Low Cost And Clean Energy

WHAT IS IT ABOUT:

Two Catalysts: Oxides of Cobalt and Nickel: CoO and NiO has been discovered which may enhance the production of hydrogen in very cheap and abundance. Traditionally, **catalysts** for splitting water involve expensive precious metals such as iridium oxide, ruthenium oxide and platinum

WHAT IS A CATALYST?

A catalyst is a substance that **speeds up a chemical reaction**, but is **not consumed** by the reaction; hence a catalyst can be **recovered chemically unchanged** at the end of the reaction it has been used **to speed up**, or catalyze.

- Traditionally, **catalysts** for splitting water involve expensive precious metals such as iridium oxide, ruthenium oxide and platinum
- "An additional problem has been stability, especially for the oxygen evolution part of the process.
- "What we have found is that we can use to earth-abundant cheaper alternatives—**cobalt and nickel oxide** with only a fraction of gold nanoparticles - to create a stable catalyst to split water and produce hydrogen without emissions.
- From an industry Point of view, it makes a lot of sense to use **one catalyst material instead of two different catalysts** to produce hydrogen from water."
- The stored hydrogen could then be **used in fuel cells**.

FUEL CELL:

A fuel cell is a device that converts chemical potential energy (energy stored in molecular bonds) into electrical energy. A PEM (Proton Exchange Membrane) cell uses hydrogen gas (H₂) and oxygen gas (O₂) as fuel. The products of the reaction in the cell are water, electricity, and heat. This is a big improvement over internal combustion engines, coal burning power plants and nuclear power plants, all of which produce harmful by-products.

In one fine line Fuel Cell can be defined as:

Hydrogen + Oxygen = Electricity + Water Vapor

"Fuel cells are a mature technology, already being rolled out in **macin\akes** Of vehicle. They use hydrogen and oxygen as fuels to generate electricity — essentially the opposite of water splitting.

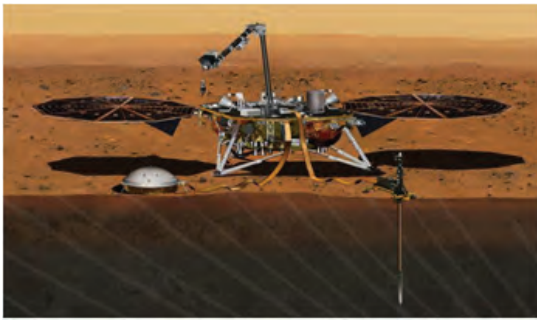
"With a lot of cheaply 'made' hydrogen we can feed fuel cell-generated electricity back into the grid when required during peak demand or power our transportation system and the only thing emitted is water."

"Gold Doping in a Layered Co-Ni Hydroxide System via Galvanic Replacement for Overall Electrochemical" was 1 published in Advanced Functional Materials.



(Scan the QR code to watch the video)

Notes



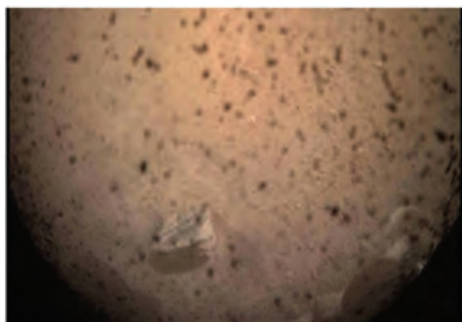
(Click on the above image to watch the video)
NASA's InSight Spacecraft Lands On Red Planet

UPSC PERSPECTIVE

- Mains Paper 3:
- Science & Technology | Awareness in the fields of IT, Space, Computers, Robotics, Nanotechnology. Particulars of the mission. Importance of the mission.

WHY IS IT IN NEWS?

- NASA's Mars InSight probe has reached its destination (on 26th Nov) and touched down near the red planet's (Mars) equator.
- InSight: (Interior Exploration using Seismic Investigations, Geodesy and Heat Transport)



Picture shared by InSight of Mars surface.

LANDING ON MARS

- Landed on the Mars after a six-month 482 million-km journey and a perilous, six-minute descent through the rose-hued atmosphere.
 - Got burst on (May 5, 2018) from Central Africa (Vandenberg)
 - NASA's ninth attempt to land on Mars since the 1976 Viking probes.
 - NASA last landed on Mars in 2012 with the Curiosity rover.
- InSight probe is fixed to the place will not move. (Stationary aircraft)

DIFFICULT LANDING

- Mars has been the graveyard for a multitude of space missions.

- Up to now, the success rate at the Mars has been only 40 percent, counting every attempted flyby, orbital flight and landing by the U.S., Russia and other countries since 1960.

COUNTRIES WHO HAVE DEVELOPED INSIGHT ARE :

USA + France and Germany

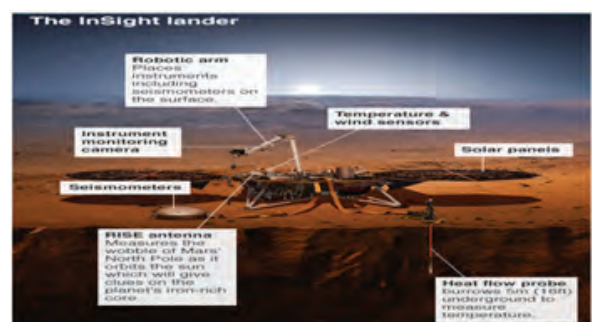
France contributed in seismometer, to measure movement within the Martian crust, and Germany contributed in a probe reaching about 16 feet down to measure heat, as well as environmental sensors to collect more data about the Mars atmosphere.

7 MINUTE ERROR:

- InSight will hit the top of the Martian atmosphere at 19,800 kilometres per hour (kph) and slow down to eight kph - about human jogging speed - before its three legs touch down on Martian soil.
- That extreme deceleration (to reduce) has to happen in just under seven minutes.
- While doing the deceleration the speed there are the chances that system might burn up.

INSIGHT MISSION

- InSight is part of NASA's Discovery Program, managed by the agency's Marshall Space Flight Center in Huntsville, Alabama.
- It will be the first mission to peer deep beneath the Martian surface, studying the planet's interior by measuring its heat output and listening for marsquakes, which are seismic events similar to earthquakes on Earth.
- It will use the seismic waves generated by marsquakes to develop a map of the planet's deep interior.



HOW DOES IT WORK?

- Landing site - The landing site is Elysium Planitia, where InSight can stay still and quiet all through.
- Lander - The lander (6m x 1.56m, deck height 83-108 cm) carries a robotic arm 1.8 m long.
- It is powered by two solar panels, and carries a seismometer, heat probe and a radio science experiment.

- ▶ Two complementary engineering cameras help with navigation and hazard avoidance.
- ▶ **Satellites** - Along with the spacecraft, a pair of mini satellites known as **Mars Cube One**, or **MarCO** also reached Mars.
- ▶ **Observation** - From Earth, NASA team will be monitoring radio signals using a variety of **spacecraft and even radio telescopes on Earth**.

SIGNALS WILL COME FROM VARIOUS SOURCES:

- ▶ The lander during descent.
- ▶ Two experimental briefcase-sized spacecraft called MarCOs that is flying behind InSight.
- ▶ InSight itself after landing.

SIGNIFICANCE OF THE MISSION:

- ▶ **794 pounds (360 kilograms)** weight.
- ▶ **Fundamental issues** of planetary and solar system science – **understanding the processes that shaped the rocky planets** of the inner solar system (including Earth) more than four billion years ago.
- ▶ Its “pulse” (**seismology**), “temperature” (heat flow probe), and “reflexes” (precision tracking).
- ▶ How did the **terrestrial planets** form?
- ▶ Further, objectives can be classified into two parts:
 - 1.) **Formation and evolution** of the entire solar system. Interior of mars, size of core, structure of core and more of interior activities Volcanoes.
 - 2.) **Tectonic activities** of mars and it differs from that of earth.

WHY WE CHOOSE MARS?

- ▶ **Earth and Mars** are quite same and have same evolution process.
- ▶ Earth and Mars used to be **similar - warm, wet and shrouded in thick atmospheres**.
- ▶ But this was before they took different paths 3.4 billion years ago.
- ▶ After the event, Mars stopped changing, while Earth continued to evolve.
- ▶ They turned out so different - **Mars cold and dry, Venus and Mercury burning hot**, and Earth hospitable to life.
- ▶ In comparison to the other terrestrial planets, Mars is neither too big nor too small. This means that it preserves the record of its formation and can give us **insight into how the terrestrial planets formed**.
- ▶ It is the perfect laboratory from which to study the formation and evolution of rocky planets.
- ▶ Scientists know that Mars has low levels of geological activity. But a lander like InSight can also reveal just how active Mars really is.
- ▶ **With InSight, Earth** would thus be compared to Mars, to better understand how a planet's starting material makes it more or less likely to support life.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

Chemist Found A Way to Prevent Side Effects from Malaria Medicaiton

UPSC PERSPECTIVE

► GS Paper 3, Science and Technology

WHY IN NEWS:

In the medication of malaria, there are several [side effects of the medication](#) which chemists have found a way to [cure and prevent the side effects of those side-effects](#) e.g. sleep disorder or insomnia, anxiety etc. which sometimes also prolong.

MALARIA AND MEDICATION:

- Malaria happens to the people because of a parasite Plasmodium which is present in mosquitos mainly in female Anopheles. [40 % of the earth](#) is somehow in those terrains which are prone to malaria and it is estimated that almost 300 to 50o million cases are reported because of this ailment. Around 1.5 to 2.7 million people die because of malaria.
- The [antimalarial drug Mefloquine, branded as Lariam](#) used by many travellers to tropical countries, is a substance with two different forms of molecule.
- [One form contains the active substance](#), but the other form causes unpleasant side effects. Until now, it was difficult to separate these two forms in the production process. It was because of [Chirality](#) of the molecules. Chirality is a geometric property of some molecules and ions. A [chiral](#) molecule/ion is non-supposable on its mirror image.
- "The production of Mefloquine creates a left-handed and right-handed molecule; the left-handed molecule is the mirror image of the right-hand molecule. While they may look so very similar, they are not the same and have a different effect on the human body. The right-handed molecule fights the malaria parasites, but the left-handed molecule affects the central nervous system."
- The drug Mefloquine is used to prevent and treat malaria. Research shows that about [10 percent of female travellers](#) used the medication used for a trip to an area

where malaria is present. It is also prescribed for small children.

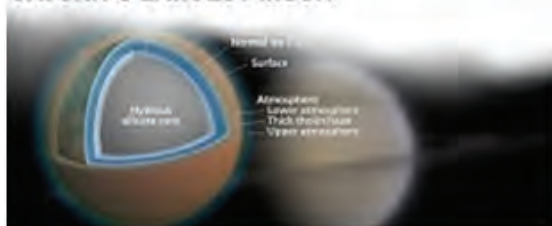
- The side effects of the drug include [insomnia and abnormal dreams](#), not to mention anxiety, depression . These side effects can even last for years afterwards.
- But chemists from have now published the answer in the scientific [journal AngewandteChemieto](#) extract the left-handed molecule of the mefloquin.
- It is well known that the medication contains two different forms of molecule, one of which is the active substance, while the other is responsible for the nasty side effects.
- Mefloquine without side effects?
- [First, they created a substance similar to Mefloquine](#) that does have the correct properties, after which they split up the normal grinding process into two steps.
- They continuously pumped the mixtures between two vessels, in addition to the stirring. After eighteen months years of trial and error, finally managed to extract only the good crystals from the molecule.



(Scan the QR code to watch the video)

Notes

STUDYING LIFE ON TITAN, SATURN'S LARGEST MOON



(Click on the above image to watch the video)

Mission to Model Life on Saturn's moon (Titan) in Laboratory

UPSC PERSPECTIVE

Prelims, Mains GS Paper – 3, Space & Science Tech

WHY IN NEWS:

► Artificial situations will be created in the labs of [University of Illinois, Chicago](#) with the aide of NASA to analyze that whether Titan (Saturn's biggest moon) could have a possibility of life other than earth or not.

[University of Illinois + NASA on Titan:](#)

- The University of Illinois at Chicago has received a \$1.1 million, five-year grant from NASA's Astrobiology Institute to identify bio signatures of life on Titan (Saturn's largest moon) from either currently living or long-extinct life.
- Titan's ocean, sits below a thick ice layer, so there is a possibility of water availability below that thick ice layer and thus it is to be presumed to have conditions favourable to life as the water is one of the prime factors of signals of life.
- NASA [Cassini mission](#), in 2005 sent a small spacecraft on several data-collecting flybys of Titan before it landed on the moon's surface, where it collected and transmitted data back to Earth; little was known about Titan except that it had a hazy, [nitrogen-rich atmosphere](#), just like the earth has 71% of Nitrogen.
- Cassini revealed that [Titan has seas of liquid methane \(CH₄\) and ethane \(C₂H₆\)](#), replenished by rain from hydrocarbon clouds. Titan's sea has also been formed like the earth's oceans system. Titan has also a water cycle, just like the earth has.
- Titan has an ocean made up of water beneath a global water ice sheet that is estimated to be as much as 80 kilometres thick.
- Life on Titan would have to exist under extremely harsh conditions. This project considers the potential for life in Titan's ocean, where the temperature ranges from -20 to 10 degrees Celsius and pressures reach 2,000 to 8,000 atmospheres, up to eight times the pressure measured less than 11 km of seawater at the deepest point of Earth's

ocean, Mariana Trench.

- The essential chemical building blocks for life are present in the atmosphere, but Titan's surface is quite inhospitable to life as we know it because of its extremely low temperature, and the absence of liquid water.
- The ocean and the ocean floor are much more habitable, supportive environments for life than Titan's frigid surface."
- Scientists generally agree that life in Titan's ocean would be microbial (small size, single-cell organisms).
- To re-create conditions found at Titan are very cumbersome to create them even artificially. Titan's ocean in the laboratory, grow microorganisms under these conditions (high pressure, extreme cold), and look for characteristic chemical and biological signatures that could help other researchers detect and identify life, or traces of extinct life forms on Titan is an uphill task.
- To do so they must construct and maintain a growth chamber at approximately -15 C at extremely high pressure.
- Pressures on Titan are two to eight times higher than [previously explored life-supporting environments on Earth](#). They will use different kinds of microorganisms such as strains of the [bacteria Moritella](#), [Pyrococcus](#) as model Titan life forms to grow in the chamber, but these organisms will have to be trained to grow at very high pressure.
- Because of the intense high pressure and extremely low temperatures, the microorganisms will grow and divide very slowly. The researchers anticipate leaving the microorganisms in the chamber for several years, occasionally—and very carefully—siphoning off a small sample of cells to examine.

SATURN:

- 6th planet from the Sun, second largest in the Solar System, after Jupiter, has a gas circle revolving around it of an average radius of nine times that of Earth. Saturn is one-eighth of average density of earth, but because of larger volume makes it massive, 95 times than that of earth.
- Named after Romanian God of Agriculture, Orbital period is 29.4571 years (10,759 days)
- At least 62 moons are known to Saturn, 53 of them are officially named.

TITAN:

- Largest moon of Saturn, Orbital period around the planet is 15.945 days
- discovered by Dutch astronomer Chrisitaan Huygens in 1655
- Only moon to have dense atmosphere, only object in the space, other than Earth, with clear evidence of stable bodies of surface liquid have been found.
- Titan is 50% larger than Earth's moon and 80% more massive.

- Second largest moon in the solar system, after Jupiter's moon Ganymede.



(Scan the QR code to watch the video)

Notes

WHAT IS NO FIRST USE POLICY?



(Click on the above image to watch the video)

NO FIRST USE POLICY

What is India's Nuclear Policy?

No First Use (NFU)

► **No first use (NFU)** refers to a pledge or a policy by a nuclear power not to use nuclear weapons as a means of warfare unless first attacked by an adversary using nuclear weapons.

► **Right To Nuclear Retaliation**

► **India will not be** the first to use nuclear weapons, but in case of **major attacks against India**, it will use nuclear weapon.

CHALLENGES TO THE NUCLEAR POLICY

► The definition of **major attack** is not described properly.

► **Chemical and biological** weapons are not well regulated.

INDIA AND NUCLEAR USE

► **No first use (NFU)** refers to a **pledge or a policy** by a nuclear power not to use nuclear weapons as a means of warfare unless first attacked by an adversary using nuclear weapons. This concept is also applied to chemical and biological warfare.

► India articulated its **NFU in 2003** after its second nuclear tests, **Pokhran-II**, in 1998.

► **In August 1999**, the Indian government released a draft of the doctrine which asserts that **nuclear weapons** are solely for deterrence and that India will pursue a policy of '**retaliation only**'.

► The document also maintains that India '**will not be the first to initiate a nuclear first strike**, but will respond with punitive retaliation should deterrence **fail**'.

The decision to authorise use of nuclear weapons rests **with PM** or his designated successor(s).

According to the **National Research Development Corporation**, despite the escalation of tensions between India and Pakistan in **2001–2002**, India remained committed to its nuclear **no-first-use policy**. However, NATO has repeatedly rejected calls for adopting NFU policy by arguing that pre-emptive nuclear strike is a key option.

ABOUT NATO

► NATO is an alliance of **28 countries** bordering the North Atlantic Ocean. It includes **Canada, the United States, Turkey**, and most members of the European Union. **NATO** is an acronym for the **North Atlantic Treaty Organization**.

INDIA AND NUCLEAR USE

► India holds its values in **Gandhi's non-violence principle** and thus it is a reluctant nuclear power.

► India believes that nuclear weapons are **political weapons**, not weapons of warfighting; their **sole purpose** is to deter the use and threat of use of nuclear weapons.

► India's nuclear doctrine is built around '**credible minimum deterrence**' and professes a '**no first use**' posture.

► **India is willing** to absorb the damage that a nuclear first strike may cause. Against such attacks, it has declared its intention to launch a **massive retaliation** to cause unacceptable damage in return.

► Consequently, India follows a policy of **deterrence by punishment** through a counter targeting strategy which aims at **destructing adversary's** major cities and industrial centres.

DOCTRINE

A doctrine is a set of beliefs and principles that guide the actions of **military forces** in support of a nation's objectives.

The purpose of a doctrine is

► Partly to **enhance deterrence** by making public one's intentions.

► Partly to provide the **basis for organising a country's** nuclear force structure, including the command and control system.

► **Partly to reassure** one's own people and allies (wherever applicable).

USE OF CHEMICAL WEAPONS

Recent instances

► **Recently, North Korea** has used chemical **agent VX** to kill **Kim Jong Nam** in Malaysia.

► Across Syria, Iraq use of chemical weapons is increasing, where their recent use has been attributed to the **Islamic State**. Bashar al-Assad used the nerve agent sarin against civilians in the Damascus suburb of Ghouta in August 2013, killing over 1,400 people.

1992 Chemical Weapons Convention

In a diplomatic solution initiated by the US, Russia, Syria agreed to give up and dismantle a stockpile of 1,300 tonnes of chemical agents and acceded to **the Chemical Weapons Convention**.

CHALLENGES AND CONSEQUENCES

- ▶ India's position as a responsible nuclear power will be undermined.
- ▶ Such a policy shift will raise questions about the credibility of other commitments made by the country in the international fora.
- ▶ Usage of nuclear weapons will destroy the environment.
- ▶ India's civil nuclear deals will have a huge hit there by impacting the energy security of the country.
- ▶ Historic civil nuclear deals with countries like Japan, which are in initial phases will stall.
- ▶ India's claim for membership in NSG will be far from reality.
- ▶ Weakening of credibility of the commitments made and policy shifts will impact India's efforts to play an important role internationally and its efforts to get into the UNSC.
- ▶ China, which also adopted the 'no first use policy' might also rethink about it, resulting in instability in the region.

WAY AHEAD

- ▶ The Challenges of such a move clearly outweigh the benefits and it is imperative for India to act responsibly by handling issues with Pakistan in other ways, such as building its defense infrastructure and building simultaneous diplomatic pressure rather than taking the path shown by Pakistan.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

OPIOID OVERDOSE CRISIS

UPSC Perspective – GS P3 under Science

WHAT IS IT ABOUT:

► Medicines which are ingredient with the opium content, are getting abused in rife all over the world, despite they come with a note of prescription.

WHAT ARE OPIOID:

Opioids, are a type of drug made from the opium, called Op, include semi-synthetic and synthetic opiates. They come with doctors' prescriptions in pain relievers, such as **heroin**, **oxycodone**, **hydrocodone**, **fentanyl**, **carfentanyl** and **tramadol**.

Opioids also include prescription pain medications, such as **morphine**, **hydrocodone** and **oxycodone** (**Oxycontin**). They entail strong prescriptions of doctors in major injury or surgery. Usually in severe pain from health conditions like cancer. Some doctors prescribe them for chronic pain.

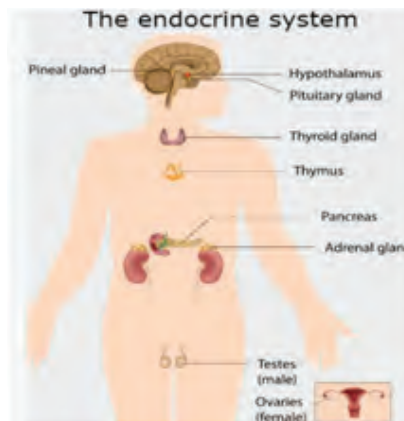
EFFECTS AND SIDE-EFFECTS:

► Opioids can cause side effects such as drowsiness, mental fog, nausea, and constipation and slow breathing which may later into demise of the patient/ person also if taken in overdose. Depressants are medications such as **Xanax** and **Oxycontin**, which can create feelings of sedation in users. They can also slow down or stop breathing

► There are many reasons someone may take a prescription medication. We know these prescriptions are only safe when taken as directed by a medical professional for a specific health purpose, but for those who still choose to use outside of these conditions, there are some things to be aware of.

► Opioid overdoses can be fatal and difficult to predict. The best prevention is to avoid opioid use unless explicitly prescribed to you with specific instructions by a medical professional.

► Mixing any of these with other substances,



including alcohol, can seriously increase the risk of negative effects and can be fatal in some cases. It is illegal to use prescription medications that were prescribed to someone else; doing so also may increase the risk of negative effects, as the actual contents of the medication vary from users to users.

► To keep yourself, others and the environment safe, safely dispose of any unused prescription medication in the safe disposal box.

► Mixing opioids, in particular, with alcohol or other medications with **benzodiazepines** can slow the respiratory system and stop breathing..

► Underlying health problems, especially chronic lung diseases such as **emphysema** (lung condition that causes shortness of breath) or **sleep apnea** (serious sleep disorder in which breathing repeatedly stops and starts.), can slow the respiratory system even when the user is not aware they may have these underlying health problems.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 3 - science and technology

WHY IN NEWS?

► The Delhi High Court set aside the government decision to ban private firms from producing and selling oxytocin, a drug used for inducing labor contractions and controlling bleeding.

OBSERVATIONS MADE BY THE COURT:

The government's decision was arbitrary and unreasonable. There was no scientific basis behind the Centre's decision restricting private companies from making or supplying the drug, which helps new mothers lactate, to prevent its alleged misuse in the dairy sector for increasing milk production.

BACKGROUND:

As per the Centre's April 27 notification, the state-run Karnataka Antibiotics and Pharmaceuticals Ltd (KAPL) was solely allowed by the Centre to make the drug to meet the country's needs.

WHY WAS IT BANNED?

The drug is misused in the dairy industry where livestock is injected with Oxytocin to make them release milk at a time convenient to farmers. Oxytocin is also used to increase the size of vegetables such as pumpkins, watermelons, eggplants, gourds, and cucumbers.

PRELIMS BITS - ABOUT OXYTOCIN:

► Oxytocin has also been dubbed the **hug hormone**, **cuddle chemical**, **moral molecule**, and the **bliss hormone** due to its effects on behaviour, including its role in love and in female reproductive biological functions in reproduction.

► Oxytocin is a **hormone that is made in the brain**,

in the **hypothalamus**. It is transported to, and secreted by, the pituitary gland, which is located at the base of the brain.

► It acts both as a hormone and as a brain neurotransmitter.

► The release of oxytocin by the pituitary gland acts to regulate two female reproductive functions:

Childbirth and Breast-feeding.

WAY FORWARD :

► **Carbetocin**: The World Health Organization (WHO) has come up with a safe and effective alternative to the controversial drug oxytocin.

► While Oxytocin, must be stored and transported at 2–8 degrees Celsius, and becomes less effective when exposed to heat, Carbetocin does not require refrigeration and retains its efficacy for at least three years even if it is stored at 30 degrees Celsius, and in 75% relative humidity.



(Scan the QR code to watch the video)

Notes

Mission Raksha Gyan Shakti



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS3 - science & technology

WHY IN NEWS ?

- Raksha Mantri Smt Nirmala Sitharaman has formally launched 'Mission Raksha Gyan Shakti'.
- The event showcased salient inventions and innovations achieved by Defence Research and Development Organisation (DRDO), Defence Public Sector Undertakings (DPSUs), and Ordnance Factories (OFs) which have resulted in successful filing of Intellectual Property Rights (IPR) applications.
- The Directorate General of Quality Assurance (DGQA) has been entrusted with the responsibility of coordinating and implementing the programme.

OBJECTIVE:

- As part of the ongoing initiatives to enhance self-reliance in defence, the Mission Raksha Gyan Shakti aims to provide a boost to the IPR culture in indigenous defence industry.

IMPORTANCE :

- IPR emerged as a key ingredient of an ecosystem which stimulates innovation and ingenuity.
- It was highlighted the need to migrate from the culture of seeking Transfer of Technology (ToT) from foreign sources to generating Intellectual Property in India, to achieve the goal of self-reliance in Defence sector.

IP FACILITATION CELL:

- It was established in April this year.
- To achieve ambitious targets of training 10,000 personnel of Ordnance Factories (OFs) and Defence Public Sector Undertakings (DPSUs) on IPR.
- To facilitate filing of at least 1,000 new IPR applications.

Prelims bits : What are Intellectual Property Rights?

According to the World Trade Organization (WTO), IPRs are the rights given to persons over the creations of their minds.

They usually give the creator an exclusive right over the use

of his/her creation for a certain period of time.

TYPES :

- **Patent**- It is a set of exclusive rights granted by a sovereign state to an inventor for a limited period of time in exchange for detailed public disclosure of an invention.
- **Copyright**- It is a legal right created by the law of a country that grants the creator of an original work exclusive rights for its use and distribution. It includes literary & artistic works such as novels, poems, plays, films, musical works, drawing, painting, photography, sculpture, architectural designs
- **Trademark**- It is a recognizable sign, design, or expression which identifies products or services of a particular source from those of others. Trademarks used to identify services are usually called service marks.
- **Industrial design right**- It is an intellectual property right that protects the visual design of objects that are not purely utilitarian. An industrial design consists of the creation of a shape, configuration or composition of pattern or color, or combination of pattern and color in three-dimensional form containing aesthetic value. An industrial design can be a two- or three-dimensional pattern used to produce a product, industrial commodity or handicraft.
- **Trade secret**- It is a formula, practice, process, design, instrument, pattern, commercial method, or compilation of information which is not generally known or reasonably ascertainable by others, and by which a business can obtain an economic advantage over competitors or customers
- **Geographical Indication (GI)**- It is a name or sign used on certain products which corresponds to a specific geographical location or origin (e.g. a town, region, or country). The use of a geographical indication may act as a certification that the product possesses certain qualities, is made according to traditional methods, or enjoys a certain reputation, due to its geographical origin.



(Scan the QR code to watch the video)

REPORT ON TOXIC TALC BY HEALTH CANADA



(Click on the above image to watch the video)

Report On 'Toxic' Talc

UPSC PERSPECTIVE

- Prelims : Talc and it's features.
- Mains Paper 2: Governance | Issues relating to development and management of Social Sector/ Services relating to Health, Education, Human Resources.
- Essay Writing

WHY IN NEWS?

The debate over whether talcum powder poses serious health risks is in the spotlight again as its perineal use (genetic parts – specially of women) is possibly carcinogenic to humans.

WHAT IS TALC

Talc is naturally occurring and consists of magnesium, silicon, hydrogen and oxygen. It is mined from the soil and, before 1973, was often contaminated with asbestos (a naturally occurring close neighbour in the ground).

RISKS POSED BY TALCUM POWDER

- A risk assessment on talc published by Health Canada, states that talcum powder is harmful to the lungs when inhaled during breathing and could possibly cause ovarian cancer when used by women in the genital area.
- Breathing in products containing talc can lead to coughing, difficulty in breathing, decreased lung function, scarring of the lung tissue.
- At that point in time it would also decide on the measures it would take to prohibit or restrict the use of the clay mineral, which finds wide use including in cosmetics, paints, ceramics.

IN INDIA

- In India, talcum powder is among the most widely known talc-based self-care products.
- Most Indians use talcum powder to get rid of sweat and the odour that it generates.
- But talcum powder clogs the pores, which are supposed to remain open. This is the main cause of local infections

like folliculitis, boils, skin eruptions.

- From fighting perspiration and odour, to helping lend the user a 'fairer' skin tone, a large number of Indian consumers rely on talcum powder and the market is estimated to be worth about ₹700 crore.

The draft cites research on talc by organisations including the International Agency for Research on Cancer (IARC), the Danish Environmental Protection Agency and the World Health Organization (WHO).

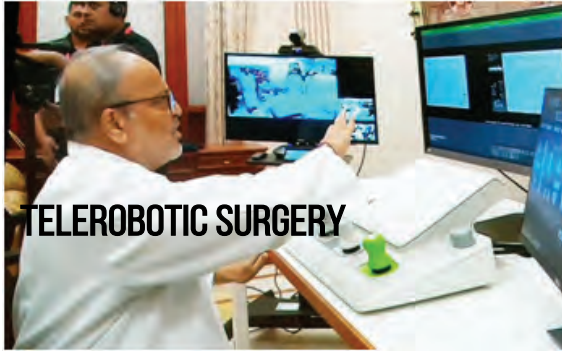
J&J CASE

In July, a U.S. court ordered pharmaceutical giant Johnson & Johnson to pay \$4.7 billion to 22 women who claimed that they had suffered from cancer as a result of using J&J's talcum powder. The company is contesting that verdict.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

Telerobotic Surgery

WHY IN NEWS ? :

- World's first telerobotic coronary intervention surgery conducted in Ahmedabad hospital.
- An Ahmedabad based cardiologist Dr Tejal Patel performed the first ever telerobotic operation on a middle-aged woman.
- He performed the intervention by operating robotically controlled instruments from a distance of 32 kms.
- Dr Patel performed the surgery successfully from the Akshardham temple complex in Gandhinagar, while the patient was in the operation theatre of Apex Heart Institute in Ahmedabad.
- The surgery was watched by Gujarat Chief Minister Vijay Rupani, his deputy Nitin Patel and priests of the Akshardham Temple. Its success is expected to pave the way for large-scale, long-distance telerobotic platforms across the globe.
- With the success of the operation, there is a potential to dramatically increase accessibility of tertiary care for heart and stroke patients in rural areas and areas with a lack of adequate medical service.

TELEMEDICINE

- Telemedicine is the use of telecommunication and information technology to provide clinical health care from a distance.
- It has been used to overcome distance barriers and to improve access to medical services that would often not be consistently available in distant rural communities. It is also used to save lives in critical care and emergency situations.

WHAT IS A TELEROBOTIC CORONARY INTERVENTION?

- Telerobotic Coronary intervention is a robotic method of performing surgery.
- With the help of the internet and a robotic tower, a surgeon is able to treat patients from a distance.
- The Da Vinci system is the leading surgical robotics technology provider.

The robotic system comprises three parts:

- A cath lab-integrated robotic arm.
- A cockpit, from where the cardiologist commands the robot through a joystick.
- A replaceable cassette, which carries the clinical materials for each individual case requirement.

ABOUT THE PROCESS

- Cardiac catheterization is a procedure used to diagnose and treat cardiovascular conditions. During cardiac catheterization, a long thin, tube called a catheter is inserted in an artery or vein in your groin, neck or arm and threaded through your blood vessels to your heart.
- Using this catheter, doctors can then do diagnostic tests as part of a cardiac catheterization. Some heart disease treatments, such as coronary angioplasty, also are done using cardiac catheterization.
- Usually, you'll be awake during cardiac catheterization, but given medications to help you relax. Recovery time for a cardiac catheterization is quick, and there's a low risk of complications.

WORLD'S FIRST TELEROBOTIC OPERATION

- Dr Patel used Jio Band 100 MBPS internet connection to perform this surgery that lasted for about 15 minutes.
- In telerobotic operations, if any failure or delay in the internet speed is noted, the surgeons present would be able to take over the operation manually within 30 seconds.
- The robotic system was placed in the operation theatre and Dr Patel was connected to it through high-speed wireless internet.
- Moving the buttons from the temple, the patient's arteries were cleaned up and a stent was inserted.

BENEFITS OF TELEROBOTIC OPERATIONS

- Cardiovascular diseases like stroke are a major cause of death worldwide result in about 18 million deaths per year.
- The telerobotic operation has a potential to contribute largely in the cardiovascular medical emergencies.
- This technology is especially important for high emergency situations of heart attacks and stroke, where ideal treatment must be received within 90 minutes or 24 hours.
- This technology will benefit, especially for those groups, who have geographical barriers and socioeconomic status.

COMMERCIALIZING

►To improve results in patients, [Corindus Vascular Robotics](#) has pioneered the world's first remote telerobotic interventional platform to deliver highly specialized and timely cardiovascular care to underserved patient populations.

►After studying the results of telerobotic interventional performed in India, the company is also planning on commercializing the system and [expand its interventional platform to address stroke care](#).



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

GS 3 - science & technology

WHY IN NEWS?

► India's first engine-less train-breached the 180 kmph speed threshold during a test run in the Kota-Sawai Madhopur section, becoming the country's fastest train.

ABOUT TRAIN 18:

- Train 18 is a flagship train set; the first prototype has been built by the Integral Coach Factory, Chennai, in a record time of 20 months.
 - The train is a 100% 'Make in India' project and is claimed to be built at half the cost of a similar train set that is imported.
 - T-18 is a self-propelled engine-less train (similar to the Metro trains) and is energy-efficient as its coaches will be fitted with LED lights. Coaches will have automatic doors and retractable footsteps.
 - It will be inter-connected with fully sealed gangways along with a GPS-based Passenger Information System. It is provided with of Bio toilets.
- It is capable of touching 200 kmph provided the rest of Indian Railways' system such as tracks and signals permit. It will replacing current 30-year-old Shatabdi Express. Thus it is touted as next generation Shatabdi Express. It will be first long-distance train without separate locomotive (engine).
- With 16 coaches, it will has same passenger carrying capacity as that of Shatabdi Express. It has aerodynamically designed driver cabins at both ends for quicker turn-around at destinations.
 - It is fully air-conditioned and offers better passenger comfort and safety, as all equipment are fixed under carriage, so that more space is available on board. It has soft lighting, automatic doors, footsteps and GPS-based Passenger Information System (PIS).



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

Transgenic Rice With Reduced Arsenic Accumulation

UPSC PERSPECTIVE:

Mains Paper 3: Science & Technology , Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Prelims : WaarsM Gene.

Mains : Benefits of transgenic rice for controlling arsenic accumulation.

WHY IN NEWS?

- Arsenic(harmful chemical element having atomic no :33 ,) accumulation in rice grains is one of the serious agricultural issues in India.
- IARC(International Agency For Research on Cancer) have told Arsenic as Carcinogenic(causing cancer)
- Arsenic is bound in two ways organic and inorganic arsenic.
- Organic arsenic(Plant /Animal tissues)is the kind that is relatively safe.
- Inorganic arsenic(soil etc) is an environmental toxin, found as a contaminant in rice and drinking water.

WHY IS ARSENIC FOUND IN RICE?

Rice efficiently absorbs arsenic from irrigation water, soil and even cooking water. Some of that arsenic is of natural origin, but pollution is often responsible for higher levels.

- From groundwater, arsenic finds its way into wells and other water supplies that may be used for crop irrigation and cooking.
- Paddy rice is particularly susceptible to arsenic contamination, for three reasons:
 - It is grown in flooded fields (paddy fields) that require high quantities of irrigation water. In many areas, this irrigation water is contaminated with arsenic.
 - Arsenic may accumulate in the soil of paddy fields, worsening the problem.
 - Rice absorbs more arsenic from water and soil compared to other common food crops.
- To address this, researchers at Lucknow-based CSIR-National Botanical Research Institute have developed transgenic (transferred from one organism to another) rice by inserting a novel fungal gene, which results in reduced arsenic

accumulation in rice grain.

WAARS M GENE

Researchers have cloned Arsenic methyltransferase (WaarsM) gene from a soil fungus, *Westerdykella aurantiaca*.

- They inserted the same into the rice genome with the help of *Agrobacterium tumefaciens*, a soil bacterium which has natural ability to alter the plant's genetic makeup.
- The newly developed transgenic rice along with normal rice was then treated with arsenic.
- Researchers found that the resulting transgenic plant acquired the potential for methylating(addigmethyle) inorganic arsenic to a variety of harmless organic species, including volatile arsenicals.
- This could be potential strategy for developing transgenic rice capable of low arsenic accumulation not only in grain but also in straw and feed which are used for livestock.

BENEFITS OF THIS GM

- The genetic modification of rice grain can be applied to develop practices to decrease accumulation of arsenic by molecular breeding, gene editing or transgenic approaches.
- As large numbers of people are affected by arsenic toxicity, it is imperative to develop rice with lesser arsenic content and high yield.
- Arsenic contamination is a serious concern for the millions of people who rely on rice as their staple food.
- Young children are also at risk if rice-based products make up a large part of their diet.



(Scan the QR code to watch the video)

Notes

POLITY

CONSUMER PROTECTION BILL 2018 PASSED BY LOK SABHA



(Click on the above image to watch the video)

Consumer Protection Bill 2018 Passed In Lok Sabha

WHY IN NEWS ?

The Lok Sabha passed the Consumer Protection Bill 2018, which seeks to wholly replace the Consumer Protection Act 1986.

MAIN FEATURES

- ▶ The Bill seeks to establish a national level regulator -Central Consumer Protection Authority- to deal with consumer complaints on a proactive measure. The present law does not have a regulator.
- ▶ Also, the Bill contains key provisions dealing with class actions, product liability, misleading advertisements, liability for celebrity endorsements etc. The Bill also addresses new age developments like e-commerce, direct selling, tele-marketing etc

REQUIREMENT

- ▶ New market dynamics
- ▶ Misleading advertisements
- ▶ E- commerce(electronic medium for shopping)
- ▶ No law for penal steps
- ▶ Administrative issues

CONSUMER RIGHTS

- ▶ Right to be protected against the marketing of goods, products or services which are hazardous to life and property.
- ▶ Right to be informed(quality, quantity,price of good)
- ▶ Right to be heard and to be assured

PRODUCT LIABILITY

The Bill also envisages provisions for product liability action on account of harm caused to consumers due to a defective product or by a deficiency in services. For example, a consumer can sue the cab aggregator if the taxi comes late and as a result, they miss a scheduled flight.

Also, the case can be filed from anywhere, unlike the existing law which allows the consumer to register the complaint only from the same place of purchase of the product or where the service is availed.

PROVISIONS OF THE BILL

- ▶ The Bill, originally introduced in January 2018 in the last winter session of Parliament, seeks to replace the three-decade-old Consumer Protection Act, 1986, which was amended thrice but is still found wanting in tackling the challenges posed by online transactions, and tele-, multi-level, and digital marketing.
- ▶ Vice-President M. Venkaiah Naidu narrated his experience with a spurious weight-loss advertisement and how he lost money but never got the medicine.
- ▶ Executive agency, the Central Consumer Protection Authority (CCPA)"promote, protect and enforce the rights of the consumers"
- ▶ The CCPA can act on complaints of unfair trade practices, issue safety guidelines, order product recall or discontinuation of services, refer complaints to other regulators, and has punitive powers such as imposing penalties.'
- ▶ To tackle misleading advertisements(The bill has provided for a fine of up to Rs 50 lakh for celebrities appearing in misleading advertisements)
- ▶ To file complaints electronically.
- ▶ Will act as a deterrent for manufacturers
- ▶ Consumer dispute resolution
- ▶ Consumer Mediation Cells(DNS)
- ▶ Celebrity endorsement

Comparison of the Consumer Protection Act, 1986 with the Consumer Protection Bill, 2018

▶ Ambit of law

1986 Act: All goods and services for consideration, while free and personal services are excluded

2018 Bill: All goods and services, including telecom and housing construction, and all modes of transactions (online, teleshopping, etc.) for consideration. Free and personal services are excluded.

▶ **Unfair trade practices** (Defined as deceptive practices to promote the sale, use or supply of a good or service.)

1986 Act: Includes six types of such practices, like false representation, misleading advertisements.

2018 Bill: The new Bill adds three types of practices to the list, namely: (i) failure to issue a bill or receipt; (ii) refusal to accept a good returned within 30 days;

and (iii) disclosure of personal information given in confidence, unless required by law or in public interest. Contests/ lotteries may be notified as not falling under the ambit of unfair trade practices.

► Product liability

2018 : No provision.

2018 Bill: Claim for product liability can be made against manufacturer, service provider, and seller. Compensation can be obtained by proving one of the several specified conditions in the Bill.

► Unfair contracts

1986 Act: No provision.

2018 Bill: Defined as contracts that cause significant change in consumer rights. Lists six contract terms which may be held as unfair.

► Central Protection Councils (CPCs)

1986 Act: CPCs promote and protect the rights of consumers. They are established at the district, state, and national level.

2018 Bill: The new Bill makes CPCs advisory bodies for promotion and protection of consumer rights. Establishes CPCs at the district, State and national level.

► Regulator

1986 Act: No provision.

2018 Bill: Establishes the Central Consumer Protection Authority (CCPA) to promote, protect, and enforce the rights of consumers as a class. CCPA may: (i) issue safety notices; (ii) pass orders to recall goods, prevent unfair practices, and reimburse purchase price paid; and (iii) impose penalties for false and misleading advertisements.

► Composition of Commissions

1986 Act:

District: Headed by current or former District Judge and two members.

State: Headed by a current or former High Court Judge and at least two members.

National: Headed by a current or former Supreme Court Judge and at least four members.

2018 Bill:

District: Headed by a president and at least two members.

State: Headed by a president and at least four members.

National: Headed by a president and at least four members.

► Appointment

1986 Act: Selection Committee (comprising a judicial member and other officials) will recommend members on the Commissions.

2018 Bill: No provision for Selection Committee.

Central government will appoint through notification.

► Penalties

1986 Act: If a person does not comply with orders of the Commissions, he may face imprisonment between one month and three years or fine between Rs 2,000 to Rs 10,000, or both.

2018 Bill: If a person does not comply with orders of the Commissions, he may face imprisonment up to three years, or a fine not less than Rs 25,000 extendable to Rs one lakh, or both.

► E-commerce

1986 Act: No provision.

2018 Bill: Defines direct selling, e-commerce and electronic service provider. The central government may prescribe rules for preventing unfair trade practices in e-commerce and direct selling



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

GS 2 - government policies & interventions,
GS 3 - cyber security

WHY IN NEWS ?

The Ministry of Home Affairs (MHA) has issued an order authorising ten security and intelligence agencies of the country to access any information stored in any computer for the purpose of monitoring, decrypting and interception.

WHO ARE THESE AGENCIES?

- According to the order, 10 central probe and snoop agencies are now empowered [under the Information Technology Act, 2000](#), for computer interception and analysis
- The 10 agencies include Intelligence Bureau, Narcotics Control Bureau, Enforcement Directorate, Central Board of Direct Taxes, Directorate of Revenue Intelligence, Central Bureau of Investigation, National Investigation Agency Cabinet Secretariat (RAW), Directorate of Signal Intelligence (For service areas of Jammu & Kashmir, North-East and Assam only), and Commissioner of Police, Delhi.

HIGHLIGHTS OF THE ORDER:

- The ministry has vested the authority on the agencies [under Section 69 of the Information Technology Act, 2000 and Rule 4 of the Information Technology Procedure and Safeguards for Interception, Monitoring and Decryption of Information\) Rules, 2009.](#)
- The order mandates for a subscriber or service provider or any person in charge of the computer resource to extend technical assistance to the agencies.
- Non-compliance will invite seven-year imprisonment and fine.

REASONS FOR SURVEILLANCE :

" In the interest of sovereignty or integrity of India, defence of India, security of State, friendly relations

with foreign States, or for preventing incitement to the commission of any cognizable offence relating to above or for investigation of any offence ".

BACKGROUND :

Section 5 of the Indian telegraph Act, 1885 gives the central government and the state government the freedom to monitor private conversations in the occurrence of any "public emergency" or in the interest of "public safety", and if it is considered necessary or expedient to do so, in addition to the following instances: in the interests of the sovereignty and integrity of India; the security of the State; friendly relations with foreign states; public order; and for the prevention of incitement to the commission of an offense.

➤ Section 69 of the information technology act, 2000 empowers the Controller of Certifying authority to direct a subscriber to extend facilities to decrypt information stored or transmitted through any computer resource. The conditions for interception are much in the lines of Section 5 of The Indian Telegraph Act, 1885, but the IT Act does not contain the overarching condition that interception can only occur in the case of public emergency or in the interest of public safety as mentioned in the Telegraph Act.

➤ In 2008, Government amends Section 69 of the IT Act 2000 expanding its power to order interception for "investigation of any offence".

➤ In 2009, Government of India announces its plan to establish Central Monitoring System (CMS), a wide-ranging surveillance programme that will give its security agencies and even income tax officials the ability to tap directly into e-mails and phone calls without oversight by courts or parliament.

MAINS BITS : CONCERNS RAISED:

Only data in motion could be intercepted earlier. But now data revived, stored and generated can also be intercepted as powers of seizure have been given. This means not just calls or emails, but any data found on a computer can be intercepted. The agencies will also have powers to seize the devices. The sweeping powers given to agencies to snoop phone calls and computers without any checks and balances is extremely worrisome. This is likely to be misused.



(Scan the QR code to watch the video)

GRAM PANCHAYAT DEVELOPMENT PLAN



(Click on the above image to watch the video)

GRAM PANCHAYAT DEVELOPMENT PLAN (GDPD)--
Sabki Yojana, SabkaVikas

People's Plan Campaign(2nd October 2018-31st
December 2018) launched by GOI.

- The People's Plan Campaign was rolled out as 'Sabki YojnaSabkaVikas' from 2nd October to 31st December 2018.
- During the campaign, structured Gram Sabha meetings held for preparing the Gram Panchayat Development Plan for the next financial year 2019-2020.
- The campaign is being undertaken on a large scale, given the number of Gram Panchayats in the country.
- Special efforts have been made to ensure maximum participation of vulnerable sections of society like SC/ST/Women etc.
- The Gram Panchayat Development Plan aims to strengthen the role of 31 lakh elected Panchayat leaders and 2.5 crore SHG Women under DAY-NRLM in effective gram sabha.
- There will be a Public Information Campaign of all programmes in Gram Panchayat office and on Gram Samvad App.

The structured Gram Sabha meetings will be spread over 2nd October -31st December, with physical presence and presentation by frontline workers /supervisors on 29 sectors:

Agriculture, Land improvement, Minor irrigation, Animal husbandry, Fisheries, Social Forestry, Minor forest produce, Small scale industries, Khadi, village and cottage industry, Rural housing, Drinking water Fuel and fodder, Roads, Rural electrification, Non-conventional energy, Poverty alleviation programme Education, Vocational education, Adult and informal education, libraries, Cultural activities, Markets and fairs, Health and sanitation, Family welfare, Women and child development, Social welfare, Welfare of weaker sections, Public distribution system and Maintenance of community assets.

MORE ABOUT CAMPAIGN

- Audit of the works (social audition)
- Gram panchayat development plans.

- Publicly display all sources of funds

This would help in making the exercise of formulating Gram panchayat development plans more structured which has been largely unorganized till now.

SCOPE

- Human Development (like sex ration, malnutrition)
- Beneficial for vulnerable societies like SC/ST's
- Sanitation (drinking water)
- Economic development
- Disaster management

SIGNIFICANCE

- Stakeholder involvement (every human is involved)
- Consolidation of all financial resources at Gram Panchayat (GP) level
- Development works
- Responsive government (earlier it was on center and state level, now it is at the local level also)

CONCERNS

- Lack Of Awareness
 - Development is not clear to people at local level
- The nonexistence of the review committee (no one can audit it)
- Integration of the plan is not there.



(Scan the QR code to watch the video)

Notes

WHAT IS SEXTORTION LAW OF J&K?



(Click on the above image to watch the video)

Sextortion: New offence In J&K

WHY IN NEWS?

► Jammu and Kashmir has now become the first state in India to ban 'sextortion' by introducing amendments to the J&K Criminal Laws Bill and the Prevention of Corruption Bill, 2018.

KEY FEATURES

The two new Bills

- Prevention of Corruption (Amendment) Bill, 2018.
 - Jammu and Kashmir Criminal Laws (Amendment) Bill, 2018.
- Approved by the State Administrative Council (SAC) led by Governor Satya Pal Malik.
- A "specific offence Sextortion" has been "inserted" in Ranbir Penal Code(RPC).
 - Amendments are being made in section 154, 161 and Schedule of Criminal Procedure Code and section 53 A of the Evidence Act so as to bring sextortion at par with similar offences prescribed under Ranbir Penal Code
 - Amendment is being made in Prevention of Corruption Act to amend the definition of misconduct and to provide that demand for sexual favours would also constitute misconduct within the meaning of section 5.

The Jammu and Kashmir Criminal Laws (Amendment) Bill, 2018 seeks to amend the Ranbir Penal Code, whereby specific offence under section 354 E is being inserted to provide for the offence of 'Sextortion'.

ACCORDING TO THE AMENDMENTS

- Any persons in a position of authority or in a fiduciary relationship, or a public servant who abuses such position or fiduciary relationship to employ physical or non-physical form of coercion to extort, request or demand sexual favours from any woman in exchange of some benefits or favours that such person is empowered to grant or with hold shall be guilty of offence of sextortion.
- They make it clear that "it shall be no defence that the sexual benefit was derived with the consent of the victim.
- Any person committing the offence of sextortion shall be punished with rigorous imprisonment for a term not

be less than three years, but may extend to five years and with fine. The offence is "non-bailable" and "not compoundable"(no compromise).

POLITICS

Parties like the PDP and NC questioned the Governor's move, criticising the focus on legislation as they saw the Centre's rule as a temporary arrangement until a new elected government took over.

SEXTORTION

Sextortion is a form of sexual exploitation that employs non-physical forms of coercion to extort sexual favours from the victim.

Sextortion refers to the broad category of sexual exploitation in which abuse of power is the means of coercion, as well as to the category of sexual exploitation in which threatened release of sexual images or information is the means of coercion.

RANBIR PENAL CODE

Jammu and Kashmir State Ranbir Penal Code or RPC the main criminal code applicable in the Indian state of Jammu and Kashmir. Indian Penal Code is not applicable here under Article 370 of the Constitution of India. It came into force in 1932 The code was introduced during the reign of Dogra dynasty with Ranbir Singh as its ruler. It was made on the lines of Indian Penal Code prepared by Thomas Babington Macaulay.



(Scan the QR code to watch the video)

Notes

CAPITAL PUNISHMENT IN INDIA



(Click on the above image to watch the video)

[Capital Punishment in India, How Effective It Is?](#)

WHY IN NEWS ?

► Supreme Court's three judges bench (comprising Former CJI Kurien Joseph, Deepak Gupta, Hemant Gupta), [held the death penalty as constitutional by 2-1](#) because of differences in sentencing of the penalty and its executions. The issue turned up for the discussions during the case of Channu Lal Verma vs State of Chhattisgarh.

EVOLUTION OF DEATH PENALTY IN INDIA:

- After the commencement of the constitution, in the first five years, death penalty was common and totally normal for punishment for murder.
- In 1955 – [Session's court judge was given a discretionary power](#) to award either capital punishment or life imprisonment.
- 1973 – [CrPC was amended](#) and by it, parliament said, "If the session's judge wants to sentence the person death penalty or life imprisonment, she/he will have to purvey the rationales of this sentencing."
- [Bachan Singh Case vs State of Punjab \(1980\)](#) – in the case, SC said, only in the rarest of the rare cases, death penalty should be awarded.
- [Machhi Singh vs State of Punjab \(1983\)](#) – some exceptions were made;
 - 1- if the murder is committed in extremely brutal manner so as to arouse the agitation of the community.
 - 2- If the murder is committed by a motive which evinces total depravity and meanness
 - 3- If the crime is heinous in proportion.

PROTECTIONS GUARANTEED UNDER CONSTITUTION:

- [Article 21](#) – Protection of life and personal liberty No person shall be deprived of his life or personal liberty except according to procedure established by law.
- [Article 72](#) – The President can pardon the death sentence (but the Governor of a State can't pardon the death sentence).
- If the presidential pardon is denied, there still a scope of judicial review exists.
- [Article 134](#) – Right of appeal from the High Court to the

► Supreme Court and applicable in any case of death penalty.

WAY AHEAD:

- 1- Objectives of the Capital Punishment: Retribution, Reformation and the Deterrence.
 - Retribution – Punishment for a crime
 - Reformation – Through the punishment change and transform the criminality of a perpetrator
 - Deterrence – Creating a fear of repercussions
- 2- The theory of Reformation lies with the society to change and reform the criminal and to make him a better person by giving him/her a second chance. But, if a criminal dies and executed, how will she/he have the second chance for the reformation.
- 3- Deterrence – If a person is aware with the repercussions of the crimes. There are no sufficient evidences which may lead to draw an extraction that death penalty can deter and avert the crime from happening.
- 4- Arbitrary nature of the death sentence – without any reason or any evidences, it is based on personal choice. In 2015, the law commission came to a conclusion that the constitutional regulation of the capital punishment has failed to prevent death sentences from being arbitrarily imposed. On a considerable note, death sentences are the concerns during the proceedings of the case.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

GS 2 - polity & Governance, GS3 - science & technology

WHY IN NEWS ?

- Supreme Court has given a clean **chit** to the decision-making followed by the government for the Rafale jet deal between India and France.
- Delivering the Rafale verdict, a Supreme Court bench—headed by Chief Justice Ranjan Gogoi—dismissed petitions on three areas of concerns pertaining to the “**decision making process, pricing and offsets**”.

SUPREME COURT VERDICT :

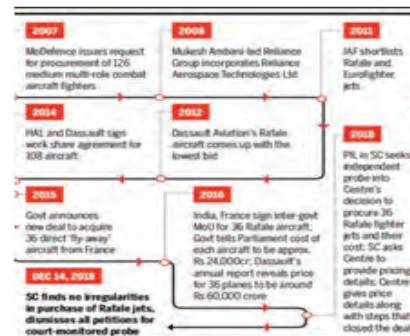
- There is no occasion to doubt the decision-making process in the deal.
- There is a **necessity to induct fourth and fifth generation fighter aircraft** and the country cannot remain without these jets.
- Not the court's job to deal with the comparative details of the pricing when the need and quality of aircraft is not in doubt.
- No substantial matter to interfere with the issue of procurement, pricing and offset partner.
- **No material to show that the deal is commercial favouritism.**
- No wrongdoing in the selection of Indian offset partners by Dassault Aviation.
- Questions raised on Rafale deal only after ex-French President François Hollande came out with a statement, which can't be the basis of judicial review.

What is the meaning of a 50% offset clause in the Rafale deal between the Indian and the French government?

- The 50% offset clause in the Rafale deal states that French companies would have to invest 50% of the amount of the deal into joint venture with Indian private or government defence firms.
- Since the Rafale deal was worth ₹62,800 Crores (€7.87 Billion), Dassault is expected to invest around 50% of its share in joint venture with Indian firms. Reliance Defence had entered into agreement with Dassault for a joint venture, even before the Rafale deal was signed.

Dassault is expected to sign more deals with other Indian firms like L&T defence, Kalyani Group, Mahindra Group, Godrej and Boyce, etc.

BACKGROUND :



PRELIMS BITS : ABOUT RAFALE AIRCRAFT

- The Rafale is a **4th generation Aircraft with twin-engine, multi-role fighter aircraft**. According to Dassault, it is capable of carrying out all combat missions: air defence, interception, ground support, in-depth strikes, reconnaissance, anti-ship strikes and nuclear deterrence.
- Rafale provides standoff capability when any country attacks India. An active electronically scanned array (AESA) radar which enables the pilot to look 200 to 400 kms away. It gives long range precision strike capability, the pilot can detect enemy aircraft and share the information and also destroy the targets.
- The 4th generation Aircraft capabilities involve Situational awareness in which Aircraft has got those sensors which enable the pilot to be aware situationally and detect the enemy Aircraft for which the Rafale has got AESA radar.
- The weapons package includes Meteor radar guided Beyond Visual Range (BVR) missile considered the best in the class with range of over 150 km and Scalp long range air to ground missiles. The Rafale will also be fitted with MICA missiles, an Air to Land precision missile of more than 300 km range.
- Today the warfare is beyond the range capability and not face to face.
- This deal includes the cost of 36 Rafale fighters, the full weapons package, simulators, spares, maintenance, performance-based logistics, India-specific enhancements and associated supplies for five years.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS2 - polity & Governance

WHY IN NEWS ?

- The Union Cabinet chaired by Prime Minister Narendra Modi recently approved implementation of **Shahpur Kandi Dam Project on river Ravi**, which has been declared a national project.
- The Cabinet also approved Central Assistance of Rs 485.38 crore the project to be provided over next five years. On completion of the project, an Irrigation Potential of 5,000 ha in Punjab State and 32,173 ha in J&K State would be created.

ABOUT THE PROJECT:

- The 55.5 high Shahpur Kandi dam, located in **Gurdaspur district of Punjab**, will help in **providing irrigation facility to 5000 hectares of land in Punjab and 32173 hectares in J&K** besides generation of 206 MW power.
- Tagged as a **national project** by the Centre, it was to be built with an estimated cost of Rs 2,285.81 crore (as per April 2008 price level) and is expected to generate 206 megawatt electricity. The project will continue to be implemented by Punjab and its design shall be as agreed by both states. Model studies will be carried out concurrently to ensure J&K gets its mandated share of 1,150 cusecs of water.
- Under the scheme, MoWR provides central assistance @ 90% of the balance cost of works component of irrigation and water supply.
- The construction of Shahpur Kandi project was taken up in May 1999 but later halted in 2014 due to dispute between Punjab and J&K.

WHY J&K OBJECTED

In July 2004, during Amarinder Singh's first stint as Chief Minister, the Assembly passed The **Punjab Termination of Agreements Act, 2004**, unilaterally abrogating its water-sharing agreements with neighbouring states.

Jammu and Kashmir demanded a firm commitment from Punjab that its rights over the water and power from the Ranjit Sagar dam would be protected in perpetuity.

CENTRE'S INTERVENTION :

Having stated its commitment to ensure that **India makes full utilisation of its "unrestricted" right over the waters of the "Eastern Rivers"** — Ravi, Sutlej and Beas — of the Indus basin as per the **provisions of the Indus Waters Treaty, 1960**, the central government began to actively mediate between Punjab and J&K, in order to ensure that no water is allowed to flow unutilised into Pakistan. The Punjab Irrigation Department estimates a nearly 12,000-cusec flow of Ravi water into Pakistan.

PROJECTED BENEFITS

Punjab government officials say the Shahpur Kandi project will provide a balancing reservoir to enable the upstream **Ranjit Sagar Dam** project to act as a peaking station, besides having its own generation capacity of 206 MW and irrigating 37,173 hectares of cultivable command area in Punjab and J&K. With the construction of the Shahpur Kandi dam, a gross storage capacity of 12,071 hectare metres would be provided, so it would be possible to generate 600 MW at Ranjit Sagar without letting any water downstream of Shahpur Kandi.

GAIN FOR J&K

J&K will get 20% of the power generated through the project at Rs 3.40 per unit with prospective effect. J&K is entitled to 0.69 million acre feet (MAF) of water from the Ravi, of which only 0.215 MAF is being utilised currently. Following the agreement, Kathua and Samba and some parts of Jammu district will benefit



PAKISTAN WATER SHORTAGE

Pakistan is currently facing an acute water shortage that is likely to wreck havoc in the country in the coming years. Recently, the Indus River System Authority (IRSA) highlighted a grave water shortage in the Indus Basin irrigation system (IBIS). Pakistan is running out of fresh water at an alarming rate, and authorities anticipate that it is likely to suffer a shortage of 31 million acre-feet (MAF) of water by 2025. The shortfall will be devastating for a country with an agriculture-based economy.

► Nearly 70 percent of the Pakistan's population is directly or indirectly associated with agriculture, which accounts for 26 percent of its gross domestic product (GDP).

PRELIMS BITS : ABOUT RAVI RIVER :

► The Ravi River, a transboundary river of India and Pakistan, is an integral part of the [Indus River Basin](#) and forms the headwaters of the Indus basin. The waters of the

Ravi River drain into the Arabian Sea (Indian Ocean) through the Indus River in Pakistan. The river rises in the Bara Bhangal, District Kangra in [Himachal Pradesh, India](#). The river drains a total catchment area of 14,442 square kilometres (5,576 sq mi) in India after flowing for a length of 720 kilometres (450 mi). Flowing westward, it is hemmed by the [PirPanjal and Dhauladhar ranges](#), forming a [triangular zone](#).



(Scan the QR code to watch the video)

Notes

Witness Protection Scheme 2018



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS - polity & governance

WHY IN NEWS ?

► The Supreme Court has approved the Centre's draft [witness protection scheme](#) and has asked all the states to implement it till Parliament comes out with a legislation. The court has also made some changes in the scheme.

BACKGROUND:

SC in State of [Gujarat v. Anirudh Singh](#) (1997) held that it is the salutary duty of every witness who has the knowledge of the commission of the crime, to assist the State in giving evidence.

► First ever reference to Witness Protection in India came in 14th Law Commission Report in 1958. After that 154th, 178th and 198th Law Commission Report also recommended putting in place a witness protection scheme.

► [Malimath Committee Report](#) also ► mechanism and said that the courts should be ready to step in if the witness is harassed during cross-examination.

SC JUDGEMENT

► SC held that the [Right of witnesses to testify freely in courts is part of Article 21 \(Right to Life\)](#).

► The court said that the scheme will be the law under Article 141/142 of the Constitution, until the enactment of suitable Parliamentary and/or State Legislations on the subject.

► The bench has also asked all states and Union Territories to set up [vulnerable witness deposition complexes](#), as required by the Scheme, by the end of 2019. These rooms will be equipped with facilities to prevent the accused and witness coming face to face.

HIGHLIGHTS OF THE DRAFT SCHEME:

The draft witness protection scheme has been finalised in consultation with the [National Legal Services Authority](#)

(NALSA) and Bureau of Police Research and Development (BPRD).

► The types of protection measures envisaged under the scheme are to be applied in proportion to the threat and they are not expected to go on for infinite time.

► The scheme envisages that there should be safeguards that witnesses and accused do not come face to face during investigation or trial and adequate security measures should be there for the safety of the witnesses.

► The scheme provides for identity protection and giving a new identity to the witness.

► The scheme shall [extend to the whole of the India except the State of Jammu & Kashmir](#).

► As per the scheme, police escort will be provided to witnesses who are threatened and, if needed, they would be relocated to a safe house. The scheme also says mails and phone calls of the witnesses would be monitored to trace the person threatening them. It said a separate [witness protection fund](#) will be created in each state to meet the expenses incurred under the scheme.

► [Witness deposition complexes](#) will be set up in all district courts by the states and union territories within a year where the witnesses could fearlessly depose against the high and mighty without coming face-to-face with the accused.

It has three categories of witnesses based on the threat perception:

► **Category 'A':** Where the threat extends to life of witness or his family members and their normal way of living is affected for a substantial period, during investigation/ trial or even thereafter.

► **Category 'B':** Where the threat extends to safety, reputation or property of the witness or his family members, only during the investigation process or trial.

► **Category 'C':** Where the threat is moderate and extends to harassment or intimidation of the witness or his family member's, reputation or property, during the investigation process.

PROTECTION MEASURES



SIGNIFICANCE OF THE SCHEME:

The witnesses, being eyes and ears of justice, play an important role in bringing perpetrators of crime to justice. The scheme is the first attempt at the national -level to holistically provide for the protection of the

witnesses, which will go a long way in eliminating secondary victimization. This scheme attempts at ensuring that witnesses receive appropriate and adequate protection. It also strengthens the criminal justice system in the country and will consequently enhance national security scenario.

NEED OF THE SCHEME :

Victims and witnesses of serious crimes are particularly at risk when the perpetrator is powerful, influential, or rich and the victims or witnesses belong to a socially or economically marginalised community. Girls and women who report sexual violence are often even more vulnerable and face extreme pressure or direct threats from the accused.

► Also, witnesses need to have the confidence to come forward to assist law enforcement and prosecutorial authorities. They need to be assured that they will receive support and protection from intimidation and the harm that criminal groups may seek to inflict upon them in attempts to discourage or punish them from co-operating. Hence, legislative measures to emphasise prohibition against tampering of witnesses have become the imminent and inevitable need of the day.

In 2003, Justice V Malimath Committee on criminal justice system had recommended enacting a separate witness protection law and in 2006, the Law Commission of India, in its 198th report, provided for a draft witness protection law.

Besides, countries such as USA, United Kingdom, China, Italy, Canada, Hong Kong and Ireland have witness protection scheme.



(Scan the QR code to watch the video)

Notes

GOVERNANCE

GENDER SENSITISATION
OF JUDICIARY

(Click on the above image to watch the video)

Gender Sensitization Of Indian Judiciary

WHY IN NEWS?

- The Supreme Court has recently passed certain key judgments to safeguard the **rights of women**.
- It abolished **triple talaq**, upheld **women's autonomy**, while declaring the **law on adultery unconstitutional**, and ruled that the bar for women's entry to the **Sabarimala temple** is illegal (In these cases the Supreme Court has supported women) On the other hand –
The judiciary has also been a purveyor of **sexist notions**: for example, the **Punjab and Haryana High Court** made a few **gender-insensitive** comments while hearing a rape case involving students of a private university in **Sonipat**.

STUDY CONDUCTED BY NATIONAL LAW
UNIVERSITY, DELHI

- In a study conducted by researchers of the **National Law University, Delhi**, 50 rape case judgments of the Supreme Court were analysed to understand
- How the court tends to **perpetuate gendered opinions**.
The researchers also tried to understand if the court evaluates victims in a **stereotypical manner**. These include how a **rape survivor** would or ought to react, what a **perpetrator** would do after the **rape** and whether a **sexually active victim** would make a false rape accusation.

OBSERVATION

- It was observed that judges often have a **stereotypical image** of a rape victim.
- The researchers found that the judges betrayed **sexist notions of gender roles**, showed a

tendency to use **insensitive language** and made comments that undermined the seriousness of the incident.

CASE 1:

- In **Raja v. State of Karnataka (2016)**, the Court overturned the conviction of **three persons** accused of raping a **domestic worker** in Bengaluru, since it found merit in the defence's argument that the victim was a **prostitute** who was falsely accusing the accused.
- The court observed: "(the victim's) **post-incident** conduct and movements are noticeably unusual.

CASE 2:

- In **Sudhanshu Sekhar v. State of Orissa (2002)**, the judges did not believe the victim and acquitted the accused by holding, "though the past conduct of the prosecutrix is an irrelevant matter, in the instant case, (the prosecutrix) asserted that she was a **virgin until the alleged incident**, but the evidence supported by her **physical features revealed that she was habituated to sex**. All factors cast a serious doubt on the prosecution case". At times, judges inadvertently undermine the seriousness of a traumatic incident.

THE STUDY CAME OUT WITH FOUR
SIGNIFICANT FINDINGS

- First, was a **sharp increase in gender insensitive comments** in cases where the woman was **sexually active**. Sexist comments were made in **52.3 per cent of the cases** which involved a sexually-active victim.
- Second, the **presence of a female judge on the bench led to a sharp decline in sexist comments**. There was no female judge in **44.4 per cent** of the cases where the bench made a sexist comment. But only **14.2 per cent** of the benches with a female judge made a sexist comment.
- Third, conviction was overturned in **80 per cent of the cases** in which the bench made gender insensitive comments.
- Fourth, gender insensitive comments have declined with significant amendments in law.

CONCLUSION

- Rape victims are subjected to the **institutional sexism (male dominance)** that begins with their

treatment by the police, continues through a male-dominated judiciary influenced by notions of victim blaming and ends in the acquittal of many alleged rapists. The solution lies in initiating conversations amongst those who are entrusted with setting the tone of public discourse.

SOLUTION

► Gender sensitisation of the judiciary. (Respecting everyone either man or woman)

- Appointing more female judges is imperative.
- The legislature should make laws in favor of victims so further they can reach to the judiciary.
- Make these laws come into practice



(Scan the QR code to watch the video)

Notes

GLOBAL NUTRITION REPORT 2018



(Click on the above image to watch the video)

UPSC PERSPECTIVE

- **Mains Paper 2:** Governance | Issues relating to poverty & hunger **Issues relating** to the development and management of **Social Sector/Services** relating to **Health, Education, Human Resources**.
- **Important International** institutions, agencies and fora, their structure, mandate.

WHY IN NEWS?

- The **Global Nutrition Report 2018** was published recently.
- With India facing a **major malnutrition crisis**, it calls for concerted actions to address the gaps and concerns.

KEY NUTRITION INDICATORS?

- **Stunting**, or low height for age, is caused by long-term insufficient **nutrient-intake and frequent infections**.
- **Wasting**, or low weight for height, is a strong predictor of mortality among children under five. It is usually the result of **acute significant food shortages and disease**.
- **Overweight** is the condition of having more body fat than is healthy.

HIGHLIGHTS

- Globally **150.8 million** children under **five years** are stunted and **50.5 million** are wasted.

STUNTING

- Of the three countries that are home to **almost half (47.2%)** of all stunted children, two are in Asia.
- Of these, with **46.6 million (31%)** children who are stunted, India tops the list of countries. It is followed by **Nigeria (13.9 million)** and Pakistan (10.7 million).

WASTING

- More than half of the world's children impacted by **wasting (26.9 million)** live in **South Asia**. India accounted for 25.5 million children who are wasted, followed by Nigeria (3.4 million) and Indonesia (3.3 million).

OVERWEIGHT

- Overweight is slightly more common among boys (6.9%) than girls (6.1%).

MALNUTRITION

- Malnutrition is responsible for **more ill-health than any other cause**.
- Of the 141 countries analysed, **88%** of countries experience more than one form of malnutrition.

PACKAGED FOODS

- As per the report, only **21%** of **packaged foods in India** are rated as being healthy.
- This is based on **overall energy, salt, sugar and saturated fat** on the negative side, and vegetable, fruit, protein, fibre and calcium as positive factors.

CONDITION OF INDIA

Spatial variation

- An **International Food Policy Research Institute (IFPRI)** study found that stunting varied great from **district to district (nearly 12% to 65%)**.
- Notably, **239 of 604** districts have **stunting levels above 40%**.
- There are high and very high levels of stunting mainly in **central and northern India (more than 30% and 40%, respectively)**.
- In contrast, **less than 20%** is the condition in almost the entire south.

FACTORS RESPONSIBLE FOR STUNTING- A STUDY OF ITS DISTRIBUTION

- Factors associated with **gender, education, economic status, health, hygiene**, and other demographic factors explain the spatial variation. Factors such as women's **low BMI** accounted for **19%** of the difference between the low versus high -burden districts.
- **Other influential gender-related** factors included maternal education (accounted for **12%**), **age at time of marriage (7%)** and antenatal care (6%).

► Children's diets (9%), assets (7%), [open defecation](#) (7%) and household size (5%) were also influential.

UNDERNOURISHMENT IS ON THE RISE

► According to the [Food and Agricultural Organisation \(FAO\)](#) of the United Nations, the world's population suffering from hunger — the food they consume isn't sufficient to provide the minimum dietary energy requirement for leading a normal, active and healthy life — [rose to 784.4 million in 2015, 804.2 million in 2016 and 820.8 million in 2017.](#)

WAY FORWARD

► The [district- and region-wise](#), sharp contrast shows the important role played by [political commitment](#) and administrative efficiency.
 ► It also reflects the [role of literacy and women's empowerment](#) in ensuring children's health.

► The figures thus call for immediate policy action to reduce inequalities and childhood stunting.

► [With district-wise data](#), state governments should address the determining factors for malnutrition.

► Food and freedom go together, and the availability of one strongly influences access to the other.

► So, social institutions can work to improve nutrition and children's welfare in free societies.

► Governments should acknowledge the linkages and commit themselves to improved nutritional policies.

► In states where the [Anganwadi Service's scheme](#) does not work well, it must be subjected to a [rigorous review](#), and [targeted](#) interventions for supplementary nutrition should be made.



(Scan the QR code to watch the video)

Notes

MENSTRUAL HYGIENE FOR RURAL WOMEN



(Click on the above image to watch the video)

UPSC PERSPECTIVE

For Mains: Women empowerment and associated issues

WHAT IN NEWS?

- Urban India is debating the topic of menstruation and the associated stigma.
- But breaking the mould in rural areas is far more challenging, which calls for an integrated approach. Urban and Rural areas

WHAT DO NFHS DATA SHOW?

- Government data suggest positive developments in the use of hygienic methods of managing menstrual periods.
- As per NFHS-4 (National Family Health Survey), 42% women in the 15-24 age group uses sanitary napkins. Of this, 16% use locally-prepared napkins, while 62% use cloth.
- In all, at least 58% are estimated to be using a hygienic method of menstruation.
- The data says that nearly 48% rural women in this age group are using hygienic methods.
- However, menstrual age of women goes up to 40-45 years, and a large section of women has still been left out of the survey.
- The ground reality is a lot different, with several challenges to bring about change in rural areas.

WHAT ARE THE LIMITATIONS?

- Mindset - In rural India, the outdated value system related to periods, sexuality, etc, are much ingrained.
- Social structure - The social structure is largely patriarchal; women individuality and needs mostly come second.
- There is even lesser sensitivity with respect to women's sexuality and physiology.
- Taboo subject - Menstruation remains one of the

- biggest taboo subjects, and breaking the notions on such matters is truly challenging.
- Financial viability - Making sanitary pads affordable for the money-starved rural families are a limitation for promoting its use.
- Media - Till date, sanitary pads' advertisements use blue as the colour to prove the effectiveness of the pads.
- It is essential that platforms as these turn mature enough to show the liquid and gel with what it should be, the colour red.

WHAT ARE THE NOTABLE INITIATIVES?

- Chuppi Todo-Sayani Bano (roughly translated as 'break the silence and grow up') is an on-ground menstrual hygiene awareness initiative in parts of Rajasthan.
- It is a private rural health care delivery enterprise for sanitary pads dispensation.
- A key effort includes disassociating morality from menstruation.
- It aims at replacing the 'right or wrong' debate with that on health, education, and development viewpoints.
- Approaching topics such as menstruation with sensitivity, internal workshops are conducted.
- They sensitise the field workers along with the network of Anganwadi workers from the villages.
- Student groups are also involved, making the efforts of sensitisation more effective.

CONCERNS

- In India's rural areas, with the lack of resources, education and awareness about personal hygiene, not just lack of information about hygiene products, the women don't even have any conversation around menstruation.
- For the less privileged, periods are the few 'cursed' days of the month. A woman on her periods cannot enter the temple, kitchen or take part in any auspicious occasion – because she is 'impure'.
- The 88% who do not have access to sanitary pads use unsanitised cloth, husk sand, tree leaves and even ash. These can cause severe reproductive health problems and infections, and can also lead to cervical cancer.
- Also, there is the issue of school dropouts and poor attendance because of inadequate menstrual hygiene management. This also is one of the causes for loss of wages for women labourers.

►Equally important is the **safe disposal** of used sanitary pads, which actually are an environmental disaster. In villages, the used pads often end up in village ponds, exposing every human being and animal to the risk of infection.

HEALTH CHALLENGES

- Poor **menstrual hygiene** practices have serious health challenges.
- They range **from urogenital or non-sexually transmitted** infections, to yeast, fungal and urinary tract infections, to even cervical cancer.
- Thus, the cost **of following hygienic** practices is far less than bearing the cost for treatment **of diseases**.

WHAT LIES AHEAD?

- Initiatives as discussed above should be financed appropriately to be scaled to **multiple states and** remote regions.
- For further progress, the **discourse on**

- menstruation needs** to change in both **urban and rural spaces**.

A multi-layered approach, focusing on **awareness, accessibility, behavioural change**, and identifying the target groups is essential

Knowing which group is more **approachable** helps in drawing out strategies to **initiate** educate and trigger behaviour change.

- E.g. **Schoolgirls, literate and educated** women are more willing to listen and contribute. Men who are **socially-involved and less politically-invested** are easier to convince and engage.



(Scan the QR code to watch the video)

Notes

National Pension System: History, Challenges & Solutions



(Click on the above image to watch the video)

UPSC PERSPECTIVE

- Prelims And Mains
- GS Paper 2

WHY IN NEWS?

- Though the **National Pension System(NPS)** was a fiscally expensive **solution**, **deviating** from it imposes very large costs on the exchequer.

HOW DOES THE PENSION POLICY EVOLVE IN INDIA?

- The **traditional civil servants** pension was a **defined benefit** at about half the wages at retirement.
- In the **1990s**, there was an **explosive trajectory of sharp growth** in pension expenditures.
- Particularly with the armed forces and the railways, pension payments were **growing much faster than wage payments**.
- Thus, the Ministry of Finance and the Asian Development Bank funded a household survey through which the number of civil servants and pensioners was estimated.
- The survey estimated that the implicit **pension debt** was about **65% of GDP**.
- The Ministry of Social Justice created **Project OASIS** in 1999.
- Under that, a National Pension System was created, which proposed a 10% wage hike to civil servants to ensure consistent contribution of pension amount from them.
- All recruits of the government from January 1, 2004, were to be placed into the NPS.
- However, it was only in 2013 that the law was passed, and the Pension Fund Regulatory and Development Authority became a statutory regulator of the service providers.

WHAT IS NATIONAL PENSION SYSTEM (NPS)?

► **National Pension System (NPS)** is a government -sponsored pension scheme. It was launched in **January 2004** for government employees. However, in 2009, it was opened to all sections.

► The scheme allows subscribers to contribute **regularly to a pension account during their working life**. On retirement, subscribers can withdraw a part of the corpus in a lump sum and use the remaining corpus to buy an annuity to secure a regular income after retirement.

This system is managed by **PFRDA (Pension Fund Regulatory and Development Authority)**.

The Pension Fund Regulatory and Development Authority (PFRDA) is a pension regulatory authority which was **established in 2003**.

► It is a statutory body established under PFRDA Act, 2003 enacted by Parliament.

► It is authorized by **Ministry of Finance, Department of Financial Services**.
HQ : New Delhi.

► It promotes old age, income security by establishing, developing and regulating pension funds and protects the interests of subscribers to schemes of pension funds and related matters.

► Mandatory contribution by the Central Government enhanced by **4 percent from the existing 10 percent to 14 percent** for employees covered under **NPS Tier-I**.

► **Central government** employees will be provided with freedom of choice for selection of **Pension Funds and pattern of investment**.

► Payment of compensation for non-deposit or delayed deposit of **NPS contributions during 2004-2012**.

► Contribution by Government employees under **Tier-II of NPS** will now be covered under Section 80 C for a deduction **up to Rs 1.50 lakh** for the

► purpose of income tax at par with schemes such as **General (PF), Contributory PF, Employees PF and Public PF**, with lock-in period of 3 years.

WHAT ARE THE CONCERNS?

► Unlike many pension reforms elsewhere in the world, there was **no decline in pension payments to existing workers or pensioners**.

This has made the NPS a **fiscally expensive reform** for the government.

► This is because, the **government is paying contributions to both new workers (with a 10% wage hike)** and pensions to those hired earlier.

► Only, when employee hired prior to **January 1, 2004** was **dead**, the government can avoid contributing to them and derive the fiscal benefits.

Also, in the early days of NPS reform, the **armed forces** were always part of the plan.

► The idea was that NPS implementation for armed forces would be done after the institutional structures were working for civil servants.

► However, this was not carried through and hence demands for “one rank one pension” were erupted later by the armed forces.

► Upon its implementation, the revenue expenditure of the government has increased further and weakened its fiscal capacity.

► All these expenditures fall under the off-balance-sheet liabilities of the Indian state.

WHAT SHOULD BE DONE TO REDUCE OFF-BALANCE SHEET LIABILITIES?

► A bond market with voluntary buyers, along with the **Public Debt Management Agency (PDMA)**, should be encouraged.

► The PDMA will engage with buyers of bonds and will bring the bond market perspective into the policy process.

► This will reduce the concern of voluntary buyers of bonds regarding the **fiscal stress of the economy** in the long term.

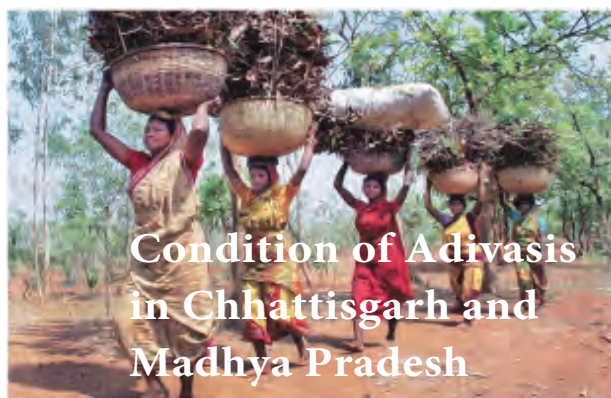
► In turn, it will **increase the capital receipts** of the government along with ensuring checks and balances on each of its policy decisions.

What Is Fiscal Consolidation?



(Scan the QR code to watch the video)

Notes



Condition of Adivasis in Chhattisgarh and Madhya Pradesh

(Click on the above image to watch the video)

Condition of Adivasis in Chhattisgarh and Madhya Pradesh

ISSUE

- The states of Chhattisgarh and Madhya Pradesh fail to give the needed attention to the communities despite significant adivasi population.
- Adivasis in Madhya Pradesh and Chhattisgarh are doing poorly, economically and educationally.

WHO ARE ADIVASIS?

- 'Adivasis' are India's indigenous tribal communities. They constitute about 8 % of the population of India (over 84 million people) and have origins that pre-date the Hindu majority. However, because they are outside of the caste system.

CONCERN?

- Chhattisgarh and Madhya Pradesh are among the four Indian states (other than North-eastern states) with more than 20% Adivasi population.
- Chhattisgarh, in fact, has an Adivasi population of more than 30%.
- However, the Scheduled Tribes (STs) have hardly found a mention in the election campaigns in the two states.
- The Adivasis seem to be the main losers in "New India".

ADIVASIS' PRESENT CONDITION?

- In both states, the Adivasis lag behind other social groups and are losing ground, economically and educationally.

INCOME

- The India Human Development Survey, in 2011-12, highlights their backwardness.
- The annual per capita income of the STs in Chhattisgarh represented 51% of the per capita income of the non-STs.
- This is a significant decrease from 2004-2005, when this proportion was 68%.
- In Madhya Pradesh, this proportion has fallen from 65 to 55%.
- Another such state is Gujarat where STs' annual per capita income represents only 35% of that of the others.
- Also, in all three states, STs are poorer than SCs (Scheduled Castes).
- In Gujarat, their per capita income is 45% of that of SCs; in Chhattisgarh, 58% and Madhya Pradesh, 75%.

EDUCATION

- The appalling socioeconomic condition of the Adivasis is a reflection of their lack of education.
- Only 1.7% of STs in the two states are graduates.
- Data suggests that quotas are not being filled in the university system as well as in the public sector.

ECONOMY

- The economic situation of the Adivasis is, in fact, closely related to their under-representation among salaried people.
- In Chhattisgarh, only 6.2% of Adivasis are salaried.
- In MP, only 3.5% were salaried in 2011-12, compared to
- 34% of Adivasis in Chhattisgarh and 46% in MP are "labourers", which means that they till the land of others.
- Political representation of Adivasis is also not in proportion to their population in the two states.

VULNERABILITY

- According to the Statistical Profile of STs in India (2013), 15% of the Adivasis in the country live in MP. NOTE: According to the Crime Bureau, more than 20% of the crimes against STs are committed in the state, including 40% of the murders.

OTHER STATES?

- The fortunes of the STs in Chhattisgarh and MP as well as in Gujarat stand in stark contrast to their conditions in South India.

- This is not because South Indian states are richer, but because they are more egalitarian (social equality and equal rights)
- In Karnataka, in 2011-12, the annual per capita income of STs represents 80% of that of the other groups, up from 62% in 2004-05.
- In undivided Andhra Pradesh, it has jumped from 76% to 86% in the same period.
- In both states, the annual per capita income of STs is either equivalent to (Andhra) or more (Karnataka) than that of SCs, and even of Muslims.
- Education is a key reason for this, as the percentage of graduates among the Adivasis is 2.6% in Andhra and 3.4% in Karnataka.
- These are proportions equal to that of SCs and superior to that of Muslims.

FOREST RIGHTS CONDITIONS?

- The Forest Rights Act (FRA), that provides legal rights to Adivasis over their forest lands, has not been fully implemented.
- More than 40% of them operate "marginal holdings" and their holdings are shrinking.
- MP has the largest forest cover in the country, but Adivasis here have found it very difficult to obtain land titles.
- More than 60% of the forest rights' claims in the state have been dismissed.
- Also, FRA allows for a maximum claim of four hectares (ha).
- But the average size of the land distributed under the act in MP is about 1.45 ha.
- In Chhattisgarh, Adivasis have filed more than 8,55,000 claims over land since 2006, but 53% of this has been rejected.
- The average land distributed here is a mere 0.85 hectare, while the Adivasis are entitled to 4 ha.
- Given their proportion, social justice and inclusiveness concerns, it is fair that the governments take note of Adivasi development and empowerment seriously.

SOLUTION?

- The most important of these is to provide good government in the worst of law and order environments.
A better civil administration structure must come up in place of the one present. This means the best officers drawn from across the country. Perhaps it is time to constitute a new All India Service.
- In 1999, the National Democratic Alliance

- government issued a draft national policy on tribals to address the developmental needs of tribal people. Special emphasis was laid on education, forestry, healthcare, languages, resettlement and land rights.
- The government even established a Ministry of Tribal Affairs. Further, a Cabinet Committee on Tribal Affairs was meant to constantly review the policy. Little has happened, though. The Cabinet Committee hardly ever meets. The draft policy is still a draft, which means there is still no policy.
- United Progressive Alliance (UPA) government drafted the Scheduled Tribes (Recognition of Forest Rights) Bill in 2005, but did not act upon it due to pressure from influential self-styled wildlife activists and the wildlife tourism lobby.
- The Fifth and Sixth Schedules, under Article 244 of the Indian Constitution in 1950 provided for self-governance in specified tribal majority areas. This did not happen. Indeed, migrations reduced the number of adivasi majority areas. But there are still solutions possible within the Indian Constitution and in the universal principles of justice and equality.
- There are 332 tribal majority tehsils in India, of which 110 are in the North East, where they have won the states of their own.
- This leaves 222 tehsils encompassing an adivasi population of over 20 million. These tehsils, many of them contiguous, must be immediately made self-governing areas, as envisaged by the Constitution.
- All these tribal majority areas must be consolidated into administrative divisions whose authority must be vested with democratically chosen leadership. This body could be called the Adivasi Maha-panchayat and must function as a largely autonomous institution. All laws passed by the state legislatures must be ratified to the satisfaction of the Maha-panchayat.
- At the same time, there are paradoxes that must be dealt with first. The most important of these is to provide good government in the worst of law and order environments. A better civil administration structure must come up in place of the one present. This means the best officers drawn from across the country. Perhaps it is time to constitute a new All India Service, similar to the former Indian Frontier Administrative Service. The IFAS was an eclectic group of officers drawn from various arms of the government. Unfortunately, it was merged into the Indian Administrative Service.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE

Mains Answer Writing and Prelims Exam Objectives further followed by the Interview.

CHALLENGES BEFORE PMUY

The Pradhan Mantri Ujjwala Yojana is facing challenges to achieve its ambitious goal of popularizing cleaner fuel.

The scheme is failing in its objective of persuading households to stop using firewood and traditional biomass fuels that have the potential to cause respiratory diseases.

PRADHAN MANTRI UJJWALA YOJANA (PMUY)

Pradhan Mantri Ujjwala Yojana (PMUY) aims to safeguard the health of women & children (cow dung and burning of wood causes indoor pollution) by providing them with a clean cooking fuel LPG. (According to the data nearly 1 Lakh people died due to the indoor pollution)

- The scheme tries to ensure women empowerment by issuing free connection in the name of the women of the households.
- Under the scheme identification of the beneficiaries, i.e. BPL families will be done through Socio Economic Caste Census Data.
- The PMUY rules were amended to allow households to opt for two 5 kg cylinders instead of one 14 kg cylinder initially and shift to a 14 kg one after a few months.
- That is based on two assumptions the household's willingness to pay for the fuel will rise and that the household will get habituated to the convenience of cooking with LPG which will lead to increased consumption of the fuel.

ABOUT THE SUBSIDY

- Under the scheme, the government provides a subsidy of Rs 1,600 to government-owned oil manufacturing companies for every free LPG gas connection that they install in poor rural households without one.
- This subsidy is intended to cover the security fee for the cylinder and the fitting charges. The beneficiary has to buy her own cooking stove.
- To reduce the burden, the scheme allows beneficiaries to pay for the stove and the first refill in monthly installments. However, the cost of all subsequent refills has to be borne by the beneficiary household.

CHALLENGES

- A recently published study called ACCESS by the Council for Energy, Environment and Water across six cities, shows, a large number of households stack LPG and biomass.
- Target of PMUY was to reach 5 Crores households by 2019.
- It was seen on January 2018 that it could reach 3 Crore 30 Lakhs households.
- But it got failed at the time of refill, people are not refilling their cylinders.
- Only a small proportion of these households use LPG alone for cooking. Women's are also using biomass and due to this their single cylinder runs for 1 year and they are categorized into in Accounts of inactive members.
- We have 3 Crore 30 Lakhs inactive accounts.
- In rural India many households are using biomass such as firewood, crop residue and dung cakes as their primary cooking fuels which are much affordable for them.
- The study across Uttar Pradesh, Madhya Pradesh, Jharkhand, Bihar, West Bengal and Odisha found people were unwilling to pay upfront Rs.900-1,000 for a 14 kg refill but would pay about Rs.300 for a refill which is about the price of refilling a 5 kg cylinder.
- While it is true that use of cylinders does increase over the years, the assumption of union government on cylinder consumption ignores the volatility in rural incomes.
- It also ignores that most rural women do not have a say in determining when a refill is ordered, even though the connection is in their name.

CRISIL (RATING AND ANALYTICS COMPANY)

Conducted a survey in rural areas asked people why they can't leave the use of biomass and wood.

Should influence people about the benefits of using **LPG cylinders**.

- Before this report should have come government launched this scheme, we can say government launch this **scheme in a hurry**.
- The results of the report were stark. Of those surveyed, **86%** said they had **not shifted from biomass to LPG** because the price of installing a connection was too high.
- Almost the same number – **83%** – said the price of **refills was too high**. The longest waiting time to get a refill for an empty **LPG cylinder** was the **second-highest reason for those wary of adopting LPG**. Gram-Panchayat level surveys found that in a fourth of the Panchayats, users had to wait for more than 15 days on average to get a cylinder refilled.
- **37% of households** in rural areas procure cooking fuel for free. Across the surveyed states, an average **35% of the households procure firewood for free**, **76% got cow-dung cakes for free** and **88% obtained other kinds of biomass for free**.
- By contrast, a subsidised **LPG cylinder refill cost around Rs 500** and an average family uses around six a year. Those in rural India who did spend money for kitchen fuel, the survey found, **paid Rs 354 per month on average**.
- Only those who already pay a significant amount for solid **fuels are likely to shift to LPG gas** without additional subsidy.
- **pollution** by providing them with a clean cooking fuel LPG. (According to the data nearly **1 Lakh people** died due to the indoor pollution)
- The scheme tries to ensure **women empowerment** by issuing free connection in the name of the women of the households.
- Under the scheme identification of the beneficiaries, i.e. **BPL families will be done through Socio Economic Caste Census Data**.
- The PMUY rules were amended to allow households to opt for two **5 kg cylinders instead of one 14 kg cylinder** initially and shift to a 14 kg one after a few months.
- That is based on two assumptions the household's **willingness to pay** for the fuel will rise and that the household will **get habituated to the convenience of cooking with LPG** which will lead to increased consumption of the fuel.

ABOUT THE SUBSIDY

- Under the scheme, the government provides a subsidy of **Rs 1,600 to government-owned oil manufacturing companies** for every **free LPG gas** connection that they install in poor rural households

without one.

- This subsidy is intended to cover the security fee for the **cylinder and the fitting charges**. The beneficiary has to buy her own cooking stove.
- To reduce the burden, the **scheme allows beneficiaries** to pay for the stove and the first refill in monthly installments. However, the cost of **all subsequent refills** has to be borne by the beneficiary household.

CHALLENGES

- A recently published **study called ACCESS** by the Council for Energy, Environment and Water **across six cities**, shows, a large number of households **stack LPG and biomass**.
- Target of PMUY was to reach **5 Crores** households by 2019.
- It was seen on January 2018 that it could reach **3 Crore 30 Lakhs** households.
- But it got failed at the time of refill, people are not refilling their cylinders.
- Only a **small proportion** of these households use LPG alone for cooking. Women's are also using biomass and due to this their single cylinder runs for 1 year and they are categorized into in Accounts of inactive members.
- We have **3 Crore 30 Lakhs** inactive accounts.
- In rural India many households are using biomass such as **firewood, crop residue and dung cakes** as their primary cooking fuels which are much **affordable for them**.
- The study across Uttar Pradesh, Madhya Pradesh, Jharkhand, Bihar, West Bengal and Odisha found people were unwilling to pay upfront **Rs.900-1,000 for a 14 kg refill** but would pay about **Rs.300 for a refill which is about the price of refilling a 5 kg cylinder**.
- While it is true that use of cylinders does increase over the years, the assumption of union government on cylinder consumption **ignores the volatility in rural incomes**.
- It also ignores that most **rural women do not have a say in determining when a refill** is ordered, even though the connection is in their name.

CRISIL (RATING AND ANALYTICS COMPANY)

- Under the scheme, the government provides a subsidy of **Rs 1,600 to government-owned oil manufacturing companies** for every **free LPG gas** connection that they install in poor rural households
- Before this report should have come government launched this scheme, we can say government launch this **scheme in a hurry**.

- ▶ The results of the report were stark. Of those surveyed, 86% said they had not shifted from biomass to LPG because the price of installing a connection was too high.
- ▶ Almost the same number – 83% – said the price of refills was too high. The longest waiting time to get a refill for an empty LPG cylinder was the second-highest reason for those wary of adopting LPG. Gram-Panchayat level surveys found that in a fourth of the Panchayats, users had to wait for more than 15 days on average to get a cylinder refilled.
- ▶ 37% of households in rural areas procure cooking fuel for free. Across the surveyed states, an average 35% of the households procure firewood for free, 76% got cow-dung cakes for free and 88% obtained other kinds of biomass for free.
- ▶ By contrast, a subsidised LPG cylinder refill cost around Rs 500 and an average family uses around six a year. Those in rural India who did spend money for kitchen fuel, the survey found, paid Rs 354 per month on average.
- ▶ Only those who already pay a significant amount for solid fuels are likely to shift to LPG gas without additional subsidy.

WAY FORWARD

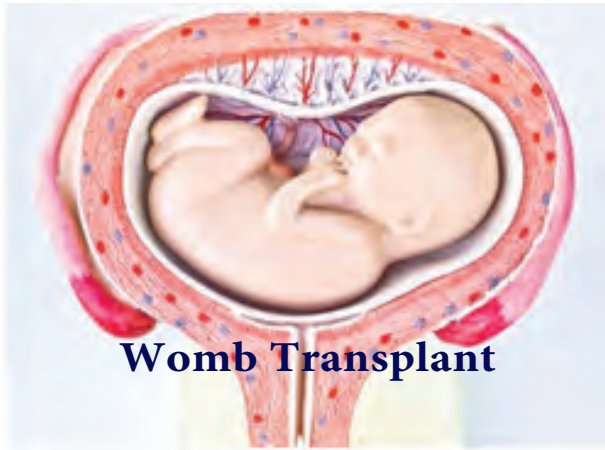
- ▶ The government and the oil marketing companies, therefore, need to find ways in which they can get more households to use LPG as their primary fuel.
- ▶ For one, the option of getting a 5-kg refill for a few years along with the subsidy may just help.
- ▶ Increase the distributors.

India is the second largest LPG distributor in India.



(Scan the QR code to watch the video)

Notes



Womb Transplant

(Click on the above image to watch the video)

Womb Transplant

WHY IN NEWS?

►A woman in Brazil who received a **womb transplant** from a **deceased donor** has **given birth to a baby girl** in the first successful case of its kind.

FACTS

- The surgery took place in **September 2016**. The recipient of the uterus was a **32 year-old** woman born without a uterus as a result of **Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome**.
- She had one **in-vitro fertilisation (IVF)** cycle four months before the transplant, resulting in eight fertilised eggs which were **cryopreserved**(-80 degree celcius)
- The donor was **45 years old and died of subarachnoid haemorrhage** -- a type of stroke involving bleeding on the surface of the brain. The uterus was removed from the donor and then transplanted into the recipient in **surgery lasting 10.5 hours**.
- The surgery involved connecting the donor uterus' and recipient's **veins and arteries, ligaments, and vaginal canals**.
- She received **five immune suppression drugs**, as well as antimicrobials, anti-blood clotting treatment and aspirin while in hospital.
- Five months after transplantation, the uterus showed no signs of rejection, ultrasound scans showed no anomalies, and the recipient was having regular menstruation.
- The fertilised eggs were implanted after seven months. **Ten days after implantation**, the recipient was confirmed to be pregnant.
- The baby girl was born **via caesarean section at 35 weeks and three days**.
- The **transplanted uterus was removed** during the caesarean section and showed no anomalies.

INFERTILITY

Infertility affects around **10 to 15 percent** of couples of reproductive age worldwide. Of this group, around **one in 500 women** have **uterine problems**, for example, to a **malformation, hysterectomy, or infection** — that prevent them from becoming pregnant and carrying a child to term.

USES

- Uterus transplants from deceased donors are **feasible** and may open access for all women with **uterine infertility**, without the need for live donors.
- There have been 39 womb transplants using a live donor, including mothers donating their womb to their daughter, resulting in 11 babies.
- But the **10 previous transplants** from a dead donor have failed or resulted in **miscarriage**.
- Currently, **uterus donation is only available for women with family members who are willing to donate**.
- It comes after **10 previously known** cases of uterus transplants from deceased donors — in the United States, the Czech Republic and Turkey — failed to produce a live birth.

TRANSPLANTATION TERMINOLOGY

- Autograft**: transplantation of **tissue excised** from one place and grafted to another in the **same individual**.
- Syngraft (isograft)**: transplantation of tissue excised from one individual and grafted to another who is **identical genetically**.
- Allograft (homograft)**: transplantation of tissue excised from one individual and **grafted to another of the same species**.
- Xenograft (heterograft)**: transplantation of tissue excised from one individual and **grafted to another of a different species**.
- Orthotopic graft**: transplantation to an anatomically correct position in the recipient.
- Heterotopic graft**: transplantation to an **unnatural position**



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS 3 - Environment and climate change

WHY IN NEWS ?

The 24th meeting of Conference of Parties (COP-24) to the United Nations Framework Convention on Climate Change (UNFCCC) will be held at [Katowice, Poland](#) from 2nd December 2018 to 14th December 2018. COP-24 is very significant as it is expected to finalize guidelines for [implementation of the Paris Agreement](#) adopted in 2016.

WHAT IS COP 24?

- COP24 is the [informal name for the 24th Conference of the Parties](#) to the United Nations Framework Convention on Climate Change (UNFCCC).
- The COP takes decisions to ensure effective implementation of the provisions of the Convention and regularly reviews the implementation of these provisions.

INDIAN PAVILION AT COP-24

- The Union Environment Minister Dr. Harsh Vardhan participated in the inauguration of Indian Pavilion at the 24th meeting of Conference of Parties (COP-24) to the United Nations Framework Convention on Climate Change (UNFCCC) held at Katowice, Poland. Theme of India Pavilion – “One World One Sun One Grid”.

ENVIRONMENT MINISTER'S STATEMENT:

The Ministry has launched a nationwide campaign in preserving and protecting the environment called the [Green Good Deeds Movement](#).

- This campaign was prepared to inspire, encourage and involve each and every individual of the society to realize people's participation in accomplishing the goals.

- India's leadership in global climate action has been recognized and Prime Minister Narendra Modi has been bestowed with “[Champion of Earth Award](#)” this year by the United Nations in promoting International Solar Alliance and resolve to make India plastic free by 2022.

INDIA AND PARIS AGREEMENT:

- India strongly [supports the objective of the Paris Agreement](#) to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius.
- India considers it important from the point of view of eradicating poverty and caring for the poor and the marginalized. The Agreement also focuses on developing country parties' need to adapt to adverse impacts of climate change, in a manner that it does not put an additional burden on them.
- During the COP-24, India would like to emphasize its concern for climate change and reaffirm its commitments to finalization of the Paris Agreement Work Programme (PAWP).
- India would like to ensure that [Common but Differentiated Responsibilities and Respective Capabilities \(CBDR-RC\)](#), in the light of different national circumstances, are operationalized in all elements of the PAWP. The outcome of the PAWP should support the enhancement of ambition without backsliding.

PRELIMS BITS : ABOUT UNFCCC:

- UNFCCC is an [international environmental treaty](#), [entered into force on 21 March 1994](#). Now, it has near-universal membership. The UNFCCC has 197 parties as of December 2015.
- [Aim of the UNFCCC](#): To prevent 'dangerous' human interference with the climate system.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)
 DBT for Electricity, Can it stop Discom losses & leakages?

WHY IN NEWS ?

Central and State both the governments have agreed on draft amendments to the electricity the national tariff policy, **delivering the electricity subsidies directly into the consumers' account.**

DBT (DIRECT BENEFIT TRANSFER):

Purpose was to reform government delivery system by using technology and processes in welfare schemes for simpler and faster flow of information/funds and to ensure accurate targeting of the beneficiaries, de-duplication and reduction of fraud.

Started on January 1, 2013

Two major programs benefitted by DBT – PAHAL (LPG subsidy scheme) and MGNREGA.

- ▶ Linking DBT with Aadhaar information and ID platform is a major achievement.
- ▶ Student Scholarship schemes and National Child Labour Project are also brought under the umbrella of DBT.
- ▶ **56 ministries are purveying the citizens with 433 Schemes by the help of DBT.**
- ▶ Better targeting of the consumers has become possible.
- ▶ Behaviour change as it inspires for more digitization of the infrastructure.
- ▶ Reduce wastage of the public's fund.

PRESENT STATE:

- ▶ Presently, State government provides subsidy to the discoms companies and later the discom provides electricity to the consumers at subsidized rates.
- ▶ Rajasthan government has proclaimed to transfer the subsidy amount into the users' accounts.

PREDICAMENTS OF ELECTRICITY DBT:

Overestimation - 90% of the subsidy will be provided to the agrarian and residential consumers. **But most of the beneficiaries are unmetered electricity**

connections and thus subsidy will be provided on assumption as the real and accurate data of the metered consumption won't be able to be deduced. This assumption will lead to overestimation of the subsidy.

▶ **Identification** – of the beneficiaries. E.g if the consumer be a tenant, so she/he would consume the electricity. But the subsidy will be deposited into the account of property owner as the connection will be in the name of the owner. Identification of tenants is not an easy way for the any entity, be the state or even the discoms.

▶ **Prior Deposition** - Consumer will have to **make prior payment** and consumer will entertain the subsidy later. So, by actions, firstly, unsubsidized amount will be disposed to the consumer to pay later on s(he) will receive the subsidy. Unsubsidized amount may be bigger than the subsidized one.

▶ **Delay in Payment** – State governments will pay first to the discoms and then they will deliver the subsidy to the consumers. But, if the delay by the discoms happens to be more in time, it will create dilemma to the consumers to whether make the prior payments or not.

WAY AHEAD:

- ▶ Amendment of Section 65 of Electricity Act can be done to provide a regulatory mandate adopted by the state.
- ▶ Attention to ongoing pilots and more large-scale pilots, e.g. Gujarat and Punjab are working on the pilot projects of electricity dbt.
- ▶ Monitoring, evaluation and learning by the stake holders Third party audits authorized by regulatory commissions.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

RBI Monetary Policy Review

WHY IN NEWS ?

RBI's MPC (Monetary Policy Committee) held a review meeting on Dec 5, 2018. After two consecutive rate hikes, RBI didn't change the rates in its fifth bimonthly monetary policy review in the fiscal year of 2018-19.

MPC (MONETARY POLICY COMMITTEE)

► Central government of the nation is responsible for making fiscal policies and RBI has the role to draw monetary policies. The main responsibility of the MPC is making important policy decisions about setting the repo rates and to keep the inflation targets set by the RBI. The MPC decides the changes to be made to the policy rate (repo rate) to control the inflation within the target limits which is based on CPI.

► Was set up in 2015, after amending the RBI Act, replaced the previous TAC (Technical Advisory Committee)

► It is an Executive Body, Consists of 6 members: 3 members are by RBI and another 3 members are nominated by the Central government. Current Members of the MPC are:

Urjit Patel	Governor, RBI
Viral V. Acharya	Deputy Governor, RBI
Michael Patra	Executive Director, RBI
Ravindra Dholakia	Professor, IIM Ahmedabad
Pami Dua	Director, Delhi School of Economics
Chetan Ghate	Professor, Indian Statistical Institute

The governor has a casting vote for the tie-breaker but cannot veto any decision by the committee (In 2016, the veto power was revoked from the governor's jurisdictions). Government members are appointed by the Centre on the recommendations of a committee headed by the Cabinet Secretary.

First MPC meeting on October 4, 2016 and scheduled to meet at least 4 times a year and proclaim its decisions after each meeting.
or not.

POLICY RATES:

► Repo rate is unchanged from last economic quarter of 2018 at 6.5% and the reverse repo rate capping at 6.25%.

► Reasons to do it was that inflation rates are relaxed and investment activities have improved. RBI has projected growth rate is 7.4% for FY19 and FY20. Impact on money supply

HOW IT MAY IMPACT MONEY SUPPLY:

► Purpose of Monetary Policy is either increase the money supply or decrease the money supply.

► Since repo rate is the interest rate at which RBI lends the money to the commercial banks. So, if the interests' rates being lower, commercial banks will be able to borrow more money from the RBI. This borrowed money could be lent to the general public which increases the money supply which may increase the inflation rate also. Since, more money gets available in the economy, so consumptions will also increase which will further escalate the inflation.

► Keeping the inflation under control is one of the prime functions of RBI, so in order to restrain it RBI increases the rates. Thus, vice versa it applies in order to decrease the money supply in the market too.

► So, by the current decision taken by RBI, the bank definitely doesn't want to decrease the money supply in the market and thus repo rates haven't been changed.

INFLATION PROJECTION:

► MPC projected that the inflation rates for the second half of the financial year 2018-19 at 2.7 to 3.2%. Earlier, the projected the inflation rate was 3.9 to 4.5%.

► Reasons of this fall are expected to be; fall in food inflation, fall in crude oil prices, appreciation of rupee. Increase in the crude oil prices are one of the pivotal reasons of this inflated inflation.

► MPC also projected that the expected inflation rates may rise to 3.8%-4.2% in the first half of 2019-20.

► But the reasons given above in the concern of Inflation, those reasons are highly volatile and also concern in considerable magnitude with external factors.



(Scan the QR code to watch the video)

Global Wage Report 2018/19

वेज ग्रोथ की दर
भारत में सबसे ज्यादा



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS3 Economy & GS 2 International organisations

WHY IN NEWS?

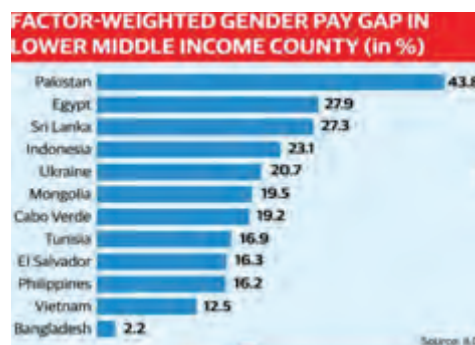
► The [International Labour Organisation](#) recently released the Global Wage Report 2018/19.

WHAT ARE THE HIGHLIGHTS?

- India recorded the highest average real wage growth in South Asia during 2008–17.
- India led the average real wage growth in 2008–17 at 5.5 against a regional median of 3.7.
- Following India was Nepal (4.7), Sri Lanka (4), Bangladesh (3.4), Pakistan (1.8) and Iran (0.4).
- [Workers in Asia and the Pacific](#) have enjoyed the highest real wage growth among all regions over the period 2006–17.
- This reflects more rapid economic growth than in other regions.
- [All emerging G20 countries except Mexico](#) experienced significant positive growth in average real wages between 2008 and 2017.
- [Russia](#) suffered a significant drop in wage growth in 2015, owing to the decline in oil prices. But since then, it has bounced back with moderate though positive wage growth.
- [The U.S.](#) posted an unchanged 0.7% wage growth and Europe (excluding Eastern Europe) stalled at about zero last year.

Wages in developing countries are increasing more quickly than those in higher-income countries.

► Pay rose by just 0.4% during last year in advanced economies, but grew at over 4% in developing countries.



The real wages almost tripled in the developing and emerging countries of the G20 between 1999 and 2017.

► However, in the advanced economies of G20, the increase over the same period aggregated to a far lower 9%.

► Nevertheless, salaries are still far too low in the developing world.

► The gaps are still significantly big as often the wage level is still not high enough for people to meet their basic needs.

GENDER PAY GAP

► For the first time, the ILO report also focuses on the global gender pay gap.

► It notes that despite some significant regional differences, men continue to be paid around 20% more than women.

► In high-income countries the gender pay gap is at its biggest in top-salaried positions.

► In low and middle-income countries, however, the gap is widest among lower-paid workers.

► Data suggests that traditional notions like differences in the levels of education play only a "limited" role in explaining gender pay gaps.

► In many countries [women are more highly educated than men but earn lower wages, even in the same occupational categories](#).

► The wages of both men and women also tend to be lower in enterprises/occupations with a predominantly female workforce.

WHAT WAS THE DRIVING FACTOR FOR GROWTH?

► The report noted that a number of countries have recently undertaken [measures to strengthen their minimum wage](#).

- The prevailing view was to provide more adequate labour protection.
- South Africa announced the introduction of a national minimum wage in 2018.
- India is also considering extending the legal coverage of the current minimum wage from workers in 'scheduled' occupations to all wage employees in the country.

WHAT IS THE IMPLICATION?

- It is to be noted that the overall global wage growth declined to 1.8% in 2017 from 2.4% in 2016
- The obvious impact of this low pace of wage growth has been on global economic growth. It's because the consumption demand was hurt by restrained spending by wage-earners.
- So the acceleration of economic growth in high-income countries in 2017 was led mainly by higher investment spending rather than by private consumption.
- There is intensification of competition in the wake of globalisation, accompanied by a worldwide decline in the bargaining power of workers. This has resulted in a decoupling between wages and labour productivity.
- For India, reaping the demographic dividend needs not only jobs, but wage expansion that is robust and equitable.

PRELIMS BITS : ABOUT INTERNATIONAL LABOUR ORGANIZATION :

- The International Labour Organization (ILO) was founded in 1919 to promote social justice and thereby contribute to universal and lasting peace. The ILO is responsible for drawing up and overseeing international labour standards.
- It is the only tripartite United Nations agency that brings together representatives of governments, employers and workers to jointly shape policies and programmes promoting decent work for all.



(Scan the QR code to watch the video)

Notes

ADDRESSING AGRARIAN DISTRESS OF INDIA



(Click on the above image to watch the video)

Addressing Agrarian Distress

WHY IN NEWS ?

- Agrarian distress in India is increasing in recent times due to various reasons.
- Farmer's contribute to 23% of overall GNP.
- 60% of our population depends upon agriculture for their livelihood.

RECENT AGRARIAN DISTRESS?

- Farmers' groups in Mumbai have pressed for loan waivers, price support measures and compensates for drought.
- Producers of onion, chilies, tomato and garlic have to contend with volatile prices all the time.
- In Madhya Pradesh, the Bhavantar scheme (price difference payment scheme) does not seem to be working well enough, while e-NAM remains a work in progress.

ISSUES

- India's farm policy revolves around loan waivers, loan waiver is only a short term benefit not the long one.
- Agriculture market
- The surge in input costs
- Distressed due to loans
- Lack of awareness
- Climate change
- India's urban consumer driven economic policies
- Loan waivers instead of restructuring, re-investment measures.

MEASURES NEEDS TO BE TAKEN

- Increasing productivity
- Agriculture, Livestock and Marketing (Promotion and Facilitation) Act, 2017, takes marketing reforms a few steps forward.
- PPPs in creating market yards and storages should be fast-tracked
- Policies of integrated pest management to prevent pest damage

- Lower fertilizer costs
- Precision farming techniques
- Corporate Social Responsibility
- Direct interventions



(Scan the QR code to watch the video)

Notes

Why is Bogibeel Bridge Important for India ?



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

GS 3 - Economy & infrastructure

WHY IN NEWS ?

► The Prime Minister Narendra Modi, dedicated the Bogibeel bridge in Assam, to the nation. Additionally, on the northern bank of the Brahmaputra, the Prime Minister also flagged passenger train passing through the bridge.

SIGNIFICANCE OF THE BRIDGE:

- The Bogibeel Bridge connects the southern bank of the Brahmaputra River in Assam's Dibrugarh district with Silapathar in Dhemaji district, bordering Arunachal Pradesh.
- The bridge spanning the River Brahmaputra between Dibrugarh and Dhemaji districts of Assam is of immense economic and strategic significance.
- This bridge is a marvel of engineering and technology.
- This bridge reduces distances between Assam and Arunachal Pradesh.
- It also reduces the train travel time between Delhi and Dibrugarh by about three hours. The bridge will also play an important role in defence of the country by facilitating ease of mobility to the India-China border in Arunachal Pradesh and also the three road lanes of the bridge can act as three landing strips for the Air Force.
- This bridge would greatly enhance "ease of living" in the region.
- The bridge is 4.94 km long and is India's longest railroad bridge.
- Since Dibrugarh is an important centre of healthcare, education and commerce in the region, and the people living north of the Brahmaputra, can now access this city, more conveniently.



ORIGIN :

- Construction of the Bogibeel Bridge was agreed by the government as part of a 1985 agreement to end years of deadly agitation by Assamese nationalist groups.
- The Bogibeel project was a part of the 1985 Assam Accord and was sanctioned in 1997-98.



- The foundation stone for the Bogibeel Bridge was laid by former Prime Minister HD Deve Gowda on January 22, 1997. The work had begun on 21st April 2002, under the Atal Bihari Vajpayee led government. It is now inaugurated on the birth anniversary of the former Prime Minister Atal Bihari Vajpayee.
- The Bogibeel Bridge, which will have a serviceable period of around 120 years, is India's only fully welded bridge for which European welding standards were adhered to for the first time in the country.

OTHER IMPORTANT BRIDGE OF NORTH EAST :

- Dhola-Sadiya Bridge - Connecting the northeast states of Assam and Arunachal Pradesh. The 264-km Shillong-Nongstoin-Tura road has been upgraded into a two-lane highway, thereby, connecting the two flanks of Meghalaya.

PRELIMS BITS : FAST FACT ABOUT NORTH EAST :

- North East is connected to the rest of the country through a narrow corridor called the chicken neck, near Siliguri.
- North East is surrounded by Bangladesh, Bhutan, China, Nepal and Myanmar. It is strategically important for India
- Only about 30 – 35 % of the area of North East is plain land, mostly in three valleys namely the Brahmaputra, the Barak, and Imphal valleys. The rest of the area is hilly land.

MAINS BITS : CHALLENGES FACED BY NORTH EAST ARE AS FOLLOWS:

- Low agricultural productivity
- Low cropping intensity
- Low coverage of irrigation
- Low application of chemical fertilizers
- Low credit flow from banks. Credit deposit ratio is less than fifty percent in the North East

- Inadequate facilities for godowns, warehouses and cold storage etc.
- Absence of modern well equipped mandis or markets in the region, barring a few places
- Very low per capita consumption of power compared to the national average
- Very low use of power for irrigation
- Non-availability of ores of industrially useful metals like iron, aluminium, copper, zinc, tin, lead and nickel etc and substances like mica and sulfur etc.
- Non-availability of big reserve of good quality coal. Coal present in the North East often contains high percentage of sulphur which makes it unfit for industrial use
- Inadequate number of polytechnics and higher institutions for engineering, medical and nursing studies etc.

- Teachers' Training in the whole of North East is another issue which needs immediate attention for overall improvement of the general standard of education in the region
- Absence of big industries except four oil refineries and two petrochemical complexes.



(Scan the QR code to watch the video)

Notes

URBAN SLUMS IN INDIA MAHARASHTRA GOVT TO REDEVELOP DHARAVI



(Click on the above image to watch the video)

URBAN SLUMS

UPSC PERSPECTIVE:

Mains Paper 1 | Society

Prelims level: Indian Urbanization, their problems and their remedies.

Mains level: Yet another attempt to redevelop Dharavi must take the lessons of past failures on board.

WHY IN NEWS ?

➤ Maharashtra government recently launched a new initiative to **redevelop Dharavi**- one of the largest slums in the world.

SLUM IN INDIA

- A Slum, for the purpose of Census has been defined as residential areas **where dwellings** are unfit for human habitation .
- Recently **the Maharashtra government** signed off on the latest initiative regarding slum development.
- A special purpose vehicle **with 80% private and 20% government stake to redevelop** Dharavi as a whole rather than in separate sub-clusters as previously envisioned. In this light there is a need to assess the slum development strategies in India.

DHARAVI

- It's home to over **60,000 to 70,000** families and in terms of demography, it wouldn't be wrong to describe it as a mini-India.
- It has several business units right from **textiles to pottery** and fabrication to the leather industry.
- **Plastic recycling and garbage** segregation too is done here. It has an estimated **5,000 business entities** and **15,000 single-room factories**. Goods produced here go to **Middle East, Southeast Asia, United States, Europe** and several other places.
- The slum has **28 temples, 11 mosques**, 6 churches, 50 banks and 60 government schools and it also houses a mobile design museum, where people showcase their products.

Slums have high number of **schedule caste and schedule tribes** .

People in these area have **low wages**, hence they cannot afford homes.

FACTS FROM CENSUS 2011

The **2011 Census** estimated **65 million people** in slums, a marked shortfall from the UN-HABITAT's 2014 estimation of **104 million**.

33,510 total slums in India.

Only **13,761 slums** have been recognised by government.

➤ **23%** slums are in Maharashtra.

➤ **14%** in Andhra Pradesh

➤ **2%** in Westbengal

Every fifth child whose age is between (0-6) lives in slum.

REASONS FOR FORMATION OF SLUMS

Slums are natural by-products of urbanisation, especially in a labour-surplus country like India.

GOVERNMENTS APPROACH TOWARDS SLUM RE-DEVELOPMENT

Brazil-has a law that if any place is kept unused , anyone can occupy it.

India-Eviction Of Anauthorised Occupied Act 1971-In India we can't occupy that any unused land.

PROBLEMS ASSOCIATED WITH THE SLUMS

- Sanitation
- Low Income
- Lack of basic civic services
- Solid waste management
- Environmentally fragile area are occupied by these (slum) people and at the time of any natural calamities these are the only people who most affected by from it.

WAY FORWARD

- Administrative
- Infrastructural-Providing house to them
- Financial
- Architectural



(Scan the QR code to watch the video)

Role of Financial Literacy in Financial Inclusion



(Click on the above image to watch the video)

Financial Literacy for Financial Inclusion, Jan DhanYojna

WHY IN NEWS ?

► Under the PMJDY (Pradhan Mantri Jan DhanYojna), government has ensured the bank accounts for everyone in India. Final goal of PMJDY was to bring a financial inclusion to the subjects of India. But the functioning of the accounts is still in paucity of regular usage.

CONCERNS:

- India has now 180 billion accounts. But, by the facts of the World Bank's Global Findex database, 48 % of the bank accounts have not done any transactions in the last one year.
- financial inclusion is not only the access of an account, but it is rather a full-fledged usage of it.
- People need to be literate financial to use these accounts on a regular basis. The inculcation to teach them usage of these financial services is Financial Literacy. That is, a set of skills that allow people to manage their money wisely along with some understanding of essential financial concepts.
- There are issues with insurance policies of government. People buy insurance policies without adequate planning and many of them give up the policies midway because they can't arrange the money to disburse the premiums. Lack of proper assessment of the financial caliber of the policy buyers is also a crucial factor which must be ascertained before selling providing the insurance. And this failure in assessments, disposes to the banks and their unmanageable debts.

FINANCIAL LITERACY;

Set of skills to manage the money wisely and rationally by knowing the basic financial terms and topology. According to OECD (Organization for Economic Cooperation and Development), financial literacy is, "a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing".

NATIONAL STRATEGY FOR STRATEGY FOR FINANCIAL EDUCATION:

- Awareness for Financial Products – by providing the awareness to the users like insurance, loans etc. the strategy is to provide awareness of basic financial products and formal banking sector.
- Educate the existing users on various financial products so that they be able to make better choices
- Consumer Protection – Consumers get aware about their choices so that they can make an eclectic choices most of the time.

WAY AHEAD:

- Skill and Knowledge should be imparted into the individuals for the basic financial things and working and to make them to practice that knowledge.
- Basic Financial Education must be provided, including financial planning, debt management, interest rating, and investment distribution.
- Training for the usage of credit card must be given so that they do not fall into the trap of payment debts.
- Regular usage given by the government on the bank accounts and should be backed by the individuals also.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

IMO's New Regulation on Fuel Oil

WHY IN NEWS ?

- ▶ IMO has release new regulations for 2020 on using low sulphur bunker fuels and ballast water treatment system.

ROLE OF IMO IN MARITIME TRADE:

- ▶ IMO is working under the UN.
- ▶ IMO is responsible for Global Standard Setting Authority of safety security and environmental performances of

Insight of IMO

Formation: March 17, 1948

Type: UN Specialized Agency

Headquarter: London, U.K.

Head: Kitack-Lim (Secretary General)

Parent Org: UN Economic and Social Council

international shipping.

- ▶ To create a regulatory framework to provide them fair, effective and universally implemented regulations.
- ▶ IMO consists of 40 member nations. 40 members nations together form the IMO council.
- ▶ In categories: A & B, there are 10 members each and the third category C consists of 20 members. These members are selected by IMO's assembly.
- ▶ India comes under the category B and India is also a party to 34 IMO conventions and protocols.

IMO's RECENT REGULATIONS:

- ▶ Prohibition on carriage of non-compliant fuel oil for consumption purposes or for operation on board unless the ship has an Exhaust gas cleaning system or scrubber fixed.
- ▶ As per new regulations, starting from January 1, 2020, ships will be allowed only to use 0.5% Sulphur bunker oil. Earlier, this limit was fixed at 3.5%.

CHALLENGES:

- ▶ According to some estimates, retrofitting scrubbers may cost up to almost between 2 to 5 million dollars and that also depends on the size of the ships. For some vessels, these scrubbers might not be available. Cost is very huge.
- ▶ The return on investment would be very low. Fitting scrubbers will have a huge investment required which are quite negligible. It is also a bit unviable investment.
- ▶ Supply side is also the challenge as there are limited scrubber suppliers.
- ▶ A scrubber will be supplied after 8-10 months after placing the order. So it is a bit in dilemma whether ships will be ready before January, 2020.
- ▶ There are also Operational Issues with the use of blended oil with the existing engine.

GLOBAL RESPONSE:

There are many nations which are uncertain on this decision. Many nations including US are seeking to delay it. USA and other major economies want a phase-in of the regulation and they are seeking for experience building face. Phase-in means the rule will not be implemented until other specified date.

EXPECTED OUTCOME:

- ▶ Increase freight cost – The new rules will increase the cost of shipping and major trade is done by freight.
- ▶ Global inflation – Increased cost of shipping will escalate the global inflation due to increase in post-production cost
- ▶ Slower growth because of the above factors and export shares becoming low.
- ▶ Push up in oil prices, which will further affect almost all the commodities and goods. India will have to pay more import bill.
- ▶ Other sectors may also face some of the predicaments in this situation.



(Scan the QR code to watch the video)

What is Public Credit Registry?



(Click on the above image to watch the video)
Public Credit Registry, How PCR Can Distinguish between Bad and Good Borrower

PUBLIC CREDIT REGISTRY:

It is an information repository, a place where information is stored, information regarding all the loans of individuals and corporate borrowers. Banks can differentiate between bad borrowers and good borrowers by this information, also the history of the repayment of borrowers. Banks can provide by the one's history of loan and its disbursement.

NEED:

Right now credit information of loan borrowers is available across multiple platforms. There is no single platform of credit. It can create one window in order to gain credit information.

PCR can help in giving information of borrowers in all lending, that from how many places one has lent money e.g. NBFC loan, corporate bonds, debentures, external commercial borrowing etc. and also for what thing the loan has been taken.

BENEFITS:

- Improve Access to Credit for the borrowers that if one have not made any default in making the payments.
- Improvement in Information Symmetry of the loan information, usually there are multifaceted agencies on the loan information and sometimes they are asymmetric in information. But PCR can furnish one single platform where informational asymmetry may not exist.
- Ease of doing business – It may also elevate India's ranking in Ease of Doing Business. First, because of there will be more access to credit and this is one parameter which decides the rank of ease of doing business. Second, borrowers' information is readily available.
- Asset quality – easy supervision and monitoring will be possible which will reduce the NPAs (Non-Performing Assets).
- Prevent over-pledging of collateral – details of the collateral, and their over pledging of collateral will be easier to check. More than one loan is called collateral.
- Drive innovation – Repayment history of the companies can be traced and on the basis of this history of disbursement, banks can further give loans to the other

borrowers. E.g. banks focus on bigger companies for loans, and entrepreneurs from MSME sector gets deprived off.

- Credit assessment and pricing of the banks can be easily done through the PCR.
- Identifications of what are the issues with lending business will become easier.
- Improve the supervision and early intervention of the risk based dynamic counter cycling provisioning at banks.

Y.M. DEOSTHALEE COMMITTEE:

- The committee recommended to improve the pcr
- PCR should capture all loan information and the borrowers should be able to access their credit history themselves.
- This data should be available to all stake holders which should be based on 'Need to Know'.

PCR IN OTHER COUNTRIES:

PCR in other nations also includes other transactional data, e.g. payments to utilities like power, telecom etc. for the retail consumers, trade credit data for businesses. These credits also indicate the quality of the borrowers and also the lending organizations.



(Scan the QR code to watch the video)

Notes

IMPORTANCE OF SOYBEAN FOR MALWA REGION



(Click on the above image to watch the video)

Soyabean Cultivation in Malwa Region

WHY IN NEWS:

Soybean cultivation is prevalent in the **Malwa region** of India and because of which it has also attained a **sobriquet** of "India's US Midwest". But the region is facing some challenges regarding the production of soybean.

HOW DID SOYBEAN TAKE ROOT IN INDIA:

- Came from USA,
- Till 1960s, there was no cultivation of soybean in India. Basically an oilseed.
- First introduced by scientists at University of Illinois into India in JNKVV (Jawahar Lal Nehru Krishi Vishwa Vidyalaya) at Jabalpur.
- Many varieties were introduced in the Indian Soil.
- In the year of 1975-76, all India soybean cultivation had touched almost 90,000 hectares. From 1960 to 1975, this crop able to get a place in procurements of agriculture.
- Revolution in soybean production happened in the Malwa region. Just like sugarcane in the western UP, soybean farming is a vote-deciding factor in the Malwa region.

MALWA PLATEAU:

- Refer towards the Western MP, constituting the Malwa plateau of India.
- Traditionally this region was dominant for single unirrigated crop of wheat or chana
- Fallow during Kharif – Farmers farm during the Kharif season of the crops because of unpredictability of the monsoon. In the kharif season, the land used to stay idle and the reason for this kind of farming is: unpredictable monsoon and also sometimes excess of rainfalls happen and plough the lands with more rabi crops.

SOYBEAN AND MALWA:

- 1) **Availability of Tubewells:** Malwa region is made up of hard basaltic auriferous rocks making it properly available for the water.
- 2) **Soil** – Soybean can grow in black cotton soil which Malwa region has in abundance.

- 3) **Water availability** – Water logging due to rain is quite prevalent in the Malwa region which can stay for almost 2-3 days, suited for soybean
- 4) **Soybean is a leguminous crop**, having root nodules making atmospheric nitrogen fixing bacteria. Soybean leaves almost 40-50 kg of **nitrogen per hectare after the harvesting**, tantamount to almost two 50-kg urea bags, leaving in the field for the upcoming crops.
- 5) **Duration of soybean is the big advantage**. Soybean from US Midwest had a maturity period of 115-120 days from seed to grain. But, in 1994, JNKVV devised a new form of soybean, JS 335 which matures in **just 95-100 days with 25-30 quintals yield, 5-10 quintals more** than the USA's one. JS335 got its kick in more than 90% of India. The duration was further reduced to 80-90 days with new seeds of JS 9560 and JS 2034 by JNKVV.
- 6) **Coverage** – Wheat is the one major crop of rabi season. So, soybean and wheat became a dominant crop cycle in the Malwa region. During kharif season, it is soybean and during rabi it is wheat.

COMMERCIAL POTENTIAL OF SOYBEAN:

- **Sale of Oil:** soybean's oil is one of the edibles in the demand around the world, making it export friendly crop.
- **Meal** – In terms of oil, **only 15-20% oil can be extracted** from soybean but the remaining extracted is proper **food rich with the protein**. The protein-rich substance can be exported to **South and South-East Asia**.
- The remaining extract can also be fed to animal as their fodder as it is high protein rich. For the food processing industry, soybean can also be useful, like soya milk is in rife these days.

CHALLENGES:

- 1) **Production** – boom of the **soybean collapsed in 2013-14 because of global agri-commodity prices**. At the global level, commodity lost their prices. Since, lesser prices started to get into the market, farmers reduced the procurements of soybean.
- 2) **Water** – **Ground water overexploitation** in the Malwa region has also led to a digging deeper and making the region exhausted.
- 3) **Pest** – higher vulnerability to the pest of the crop is also a reason of the regression in the production of soybean.
- 4) **Cultivation** – main reason of the pest attack is absence of crop rotation. Soybean and wheat need to be change in the cycle process of yield in the region.



(Scan the QR code to watch the video)

ISSUES WITH ULTRA MEGA POWER PROJECTS



(Click on the above image to watch the video)

Ultra Mega Power Projects in India, Issues of Economic vulnerability of UMPP

WHY IN NEWS:

The Gujarat government has recently asked its discoms to approach the CERC (Central Electricity Regulatory Commission) to get approval for a tariff hike.

CERC is a statutory quasi-judicial body functioning under sec - 76 of the Electricity Act 2003 (CERC was initially constituted under the Electricity Regulatory Commissions Act, 1998 on 24th July, 1998). CERC is the regulatory body of power sector in India.

If the Discoms (Distribution Companies) have to increase or make differences in the tariff on power and electricity, they will have to get approval from CERC.

BACKGROUND OF THE UMPP:

- In 1995, the central government had come up with this policy with a purpose to coal based power projects in the nation, with a capacity of 1000MW or more than that.
- In this policy, it was decided to set up UMPPs and central government invited for the coastal project
- UMPPs are run by three companies: TATA group, Adani and the third is ESSAR group.
- According to the new conditions they can run only on imported coal and should have a combined generation capacity of 10,000 MW and these companies have to sign a power purchase agreement with the various state governments. Coal is imported from Indonesia.

PROBLEM:

- Coal was imported from Indonesia. But, in 2010, Indonesia issued new regulations in which pricing and policies were increased. Earlier it was cheaper.
- The increased cost of coal infused some financial implications.
- According to a new decision by Supreme Court, there should not be any change in the price within the nation because of increased coal tariff by Indonesia.
- Discoms were not able to raise the tariff which badly effected lenders, promoters and customers. For the three plants, they were unable to pass the uncontrollable

increase in the fuel prices of discoms. Power projects were surviving by additional funds by the promoters.

➤ There was also a likelihood of erosion in the credit worthiness of the generators and this would result in creation of NPA. This could have been only solved if there were some reasonable increase in the tariffs. But it would burden the consumers so both ways were difficult.

➤ So, a high powered committee (HPC) was set up by the Gujarat govt.

RECOMMENDATIONS OF THE HPC:

- Three projects should be permitted to pass on impact of high fuel cost equitably to consumers, lenders and other stakeholders.
- The banks have to make a cut of more than 10,000 crores. It also recommended that lenders should reduce the interest rates which may ease the pressure on power plants.
- Also recommended a partial pass-through of this high coal prices to the consumers. Which means the price hike on the coals must be passed on to consumers also, but in partial magnitude. It may increase the tariff also.
- Along with this, there should be a commercial restructuring of these plants.

PRESENT STATUS:

- SC said, its previous verdict will not intercept in the way of measures suggested by the HPC.
- From the part of the state government, they are contemplating to pass on the extra fuel cost on the consumers, rest no other charges.
- With regard to CERC, the state govt has asked its discoms to get approvals from CERC for the increase in tariffs. CERC should also consider the following factors before these approvals:
- Affordability of power consumers, Protection of interests of various stake holders, and also alternatives to these situations.
- Inclusively it should be based on balanced approach.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

GS 3 - economy & Agriculture

WHY IN NEWS:

- ▶ Three newly elected Indian state governments have waived up to \$8.6 billion in farm loans.
- ▶ Former Reserve Bank of India governor Raghuram Rajan has stressed on the need to do away with farm loan waivers citing "enormous" problems for state finances and investment. He also said that farm loan waiver should not form part of poll promises and he has written to Election Commission that such issues should be taken off the table.

WHAT EXACTLY IS A FARM LOAN WAIVER ?

- ▶ The Central or the state government take the responsibility of the loans taken by farmers and pay them back to the banks. Two type of farm loan waivers - Complete Waiver & Partial Waiver (Only certain part is paid back by government)

BACKGROUND:

According to a 2017 report by the RBI, farm loan waiver amounting to Rs 88,000 crore likely to be released in 2017-18 by seven states, including Uttar Pradesh and Maharashtra, may push inflation on permanent basis by 0.2%.

THE EVER- RISING DEMAND:

- ▶ Agriculture currently contributes just about 17% to the national output and about 49% of the population directly or indirectly depends on it for employment.
- ▶ Farmer distress is a real and pressing problem, as evidenced by the protests currently taking place in various parts of the country. In the recent past, widespread demands have been heard for farm loan waivers amid continuing agrarian distress.

ISSUES WITH LOAN WAIVERS:

It covers only a tiny fraction of farmers. The loan waiver

as a concept excludes most of the farm households in dire need of relief and includes some who do not deserve such relief on economic grounds.

- ▶ It provides only a partial relief to the indebted farmers as about half of the institutional borrowing of a cultivator is for non-farm purposes.
- ▶ In many cases, one household has multiple loans either from different sources or in the name of different family members, which entitles it to multiple loan waiving.
- ▶ Loan waiving excludes agricultural labourers who are even weaker than cultivators in bearing the consequences of economic distress.
- ▶ It severely erodes the credit culture, with dire long-run consequences to the banking business.
- ▶ The scheme is prone to serious exclusion and inclusion errors, as evidenced by the Comptroller and Auditor General's (CAG) findings in the Agricultural Debt Waiver and Debt Relief Scheme, 2008.
- ▶ Schemes have serious implications for other developmental expenditure, having a much larger multiplier effect on the economy.

WHY LOAN WAIVER CANNOT STOP SUICIDES ?

- ▶ Loan waiver has a limited outreach
- ▶ Loan waivers benefit only those farmers who have availed institutional finance. Informal lending is not covered

MAINS BITS : WHAT NEEDS TO BE DONE?

- ▶ Enhance non- farm income: The sustainable solution to indebtedness and agrarian distress is to raise income from agricultural activities and enhance access to non-farm sources of income. The low scale of farms necessitates that some cultivators move from agriculture to non-farm jobs.
- ▶ Improved technology, expansion of irrigation coverage, and crop diversification towards high-value crops are appropriate measures for raising productivity and farmers' income. All these require more public funding and support.

Additional Burden
More states have announced farm loan waivers

LARGE AMOUNTS	Delhi	UP	Chhattisgarh
No. of operational land holdings (in lakhs)	76.55	100.03	39.6
No. of crop loan accounts (in lakhs)	50.47	82.5	11.15
Crop loan outstanding (₹ Cr)	78	62,000	7,000

COST OF WAIVER

- Amount would depend on the coverage of the scheme
- Usually it is available to small and marginal farmers
- Identification based on size of land holding
- Not entire loan is waived; only up to a limit



(Scan the QR code to watch the video)

GEOGRAPHY

UN'S WMO: 2018 TO BE 4TH HOTTEST YEAR ON RECORD



(Click on the above image to watch the video)
2018 Is Earth's Fourth Warmest Year on Record, UN Meteorological Organization

WHY IN NEWS?

Earth's temperature continues to rise on record level, 2018 is the fourth warmest year consecutively in the history of mankind.

WMO REPORT

According to the latest World Meteorological Organization's report (November 2018), these are the some of the formidable data and facts which are vitally to be heeded:

- ▶ World's average temperature in 2018 was nearly 1C above pre-industrial levels (Pre-Industrial epoch: 1850 – 1900) of the first ten months of 2018. The extremities in the weather have been deteriorating the climate on a continuous basis, resulting in the rise sea-levels and glaciers melting.
- ▶ The past four years have been the hottest on record, 20 warmest years in the past 22 years. It means that 2015, 2016, 2017, 2018 were the four warmest years and after 2015, it has only risen. This temperature rise can hit 3C to 5C by 2100, which is indubitably pernicious for the whole world.
- ▶ Warming of the world is indispensably needed to be below than 2C, with an aspiration to limit the rise up to 1.5C.
- ▶ World will have to reduce the emission by 1/3rd in order to attain the 2C level and 1/5th in order to attain 1.5C. In simple terms, world will have to exert triple times than now for not breaching of 2C level.
- ▶ The Intergovernmental Panel on Climate Change (IPCC) special report on Global Warming of 1.5°C reported that the average global temperature for the decade 2006-2015 was 0.86°C above the pre-industrial time. The average increase above the same level for the most recent decade 2009-2018 was about 0.93°C and for the past five years, 2014-2018, was 1.04°C above the pre-industrial level.

ALARMING ASSERTION BY DT. SEC. GEN.

"These are more than just numbers. Every fraction of a degree of warming makes a difference to human health and access to food and fresh water, to the extinction of animals and plants, to the survival of coral reefs and marine life." Asserted by Elena Manaenkova, Deputy Secretary General of WMO. "We are the first generation to fully understand climate change and the last generation to be able to do something about it." She emphatically added. Jens Mattias Clausen, Greenpeace's head of delegation at the UN climate change conference (COP24) in Poland, said: "The evidence, if we needed any more, continues to stack up. The record-high heatwaves, record-low Arctic sea ice, above average tropical cyclones and deadly wildfires are an alarm bell impossible to ignore. We're in the midst of a climate crisis and this meteorological report spells out the worsening threat in startling clarity. It's no longer our future that is in peril; our today is at risk."

REPERCUSSIONS IN 2018 OF TEMPERATURE RISE

70 tropical cyclones in the northern hemisphere in comparison with long-term average of 53. Storms and devastations in the Mariana Islands, Philippines, Vietnam, the Korean peninsula and Tonga, hurricane Florence and Michael hit US. Wildfires in Greece, Canada, California and other areas, flood of Kerala displaced more than 14 lakh people from their homes this year, Japan also faced the flood and so the east Africa.

BULLETS ON THE ORGANIZATIONS

WMO (World Meteorological Organization): An intergovernmental organization provides details of global, regional and national temperatures and extreme weather events. It also provides information on long-term climate change indicators include atmospheric concentrations of greenhouse gases, sea level rise, and sea ice extent.



Successor of IMO founded in 1873.

Founded on: March 23, 1950

H.Q.: Geneva, Switzerland

President: David Grimes

Parental Org: UN Economic and Social Council.

Members: 191 Nations

COP24: (Conference of Parties) 24 at Katowice, Poland:

► Duration: December 2 – December 14, 2018

► Location: Katowice, Poland (Poland had held COP 2 more times, in 2013 Warsaw and in 2008 Poznan)

► Happens with another pseudonym of United Nations Climate Change Conference.

► First CoP held at Berlin, Germany.

Well-known Kyoto Protocol (CoP-3

was organized in 1997.

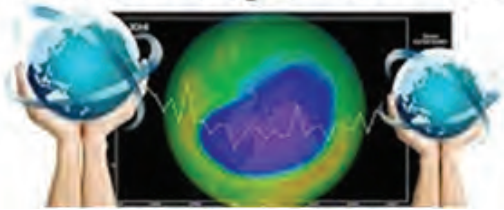
India hosted CoP once in 2002 at New Delhi.



(Scan the QR code to watch the video)

Notes

Atmospheric Iodine will destroy bad Ozone



(Click on the above image to watch the video)

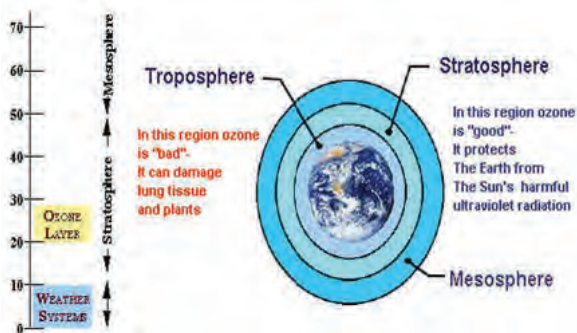
ATMOSPHERIC IODINE'S ROLE IN BAD OZONE

UPSC Perspective – GS Paper 3, Geography and Environment

WHY IN NEWS?

Iodine is increasing in the Atmosphere and it is destroying the bad ozone.

IODINE'S EFFECT OVER THE BAD OZONE



- Analysis of iodine trapped in Alpine () ice has shown that levels of atmospheric iodine have tripled over the past century, which partially offsets human-driven increases in the air pollutant, ozone.
- Cities and places where vehicles are more in quantity, those regions will emit more hydrocarbons and thus leading to form more Bad Ozone. Bad Ozone is not only deleterious for the atmosphere but also for the human life.
- The study showed, however that, although iodine can destroy 'bad' ozone, there isn't enough to counter all of the production.
- Analysis of the Alpine ice, by scientists, shows that iodine concentration began to increase after the Second World War following the growth in motor vehicles and electricity generation.
- Nitrogen oxide emissions from vehicles and power plants since the 1950s increases surface ozone, and this reacts with chemicals in seawater to release more iodine into the atmosphere, which partially, but not completely, destroys some of these harmful gases.
- "Iodine's role in human health has been recognised for some time—it is an essential part of our diets.

- "Its role in climate change and air pollution, however, has only been recently recognised,.
- The study in the European Alps has now provided new long-term insight into the delicate balance of ozone in the atmosphere.
- Ozone in the lower atmosphere acts as an air pollutant and greenhouse gas, but ozone is also the main driver of iodine emissions from the ocean. Once released into the atmosphere iodine acts to destroy this 'bad' ozone.
- The more ozone humans produce, the more iodine is released from the ocean which can then help destroy the ozone produced by humans. This means that iodine levels in the ocean can, at least partially, act to keep ozone gases in the lower atmosphere in check, but there isn't enough to counter all of the production.

ALPS

Countries with Alps – Primarily with 2 countries : Austria and Switzerland But, France, Monaco, Italy, Liechtenstein, Germany, and Slovenia are also within the vicinity of Alps.

Peak – Mont Blanc (4808m/15,771 ft)

Length – 1200 Km, Width – 250Km



(Scan the QR code to watch the video)

Notes

WHAT IS BIODIVERSITY OFFSETTING?



(Click on the above image to watch the video)

BIODIVERSITY OFFSETTING, BENEFICIAL OR LICENSE TO DAMAGE ECOLOGY

UPSC Perspective – GS Paper 3, Environment

WHAT IS BIO-DIVERSITY OFFSETTING:

Biodiversity offsetting is a system used predominantly by planning authorities and developers to fully compensate for biodiversity impacts associated with economic development, through the planning process. In some circumstances, biodiversity offsets are designed to result in an overall biodiversity gain. Offsetting is generally considered the final stage in a mitigation hierarchy, whereby predicted biodiversity impacts must first be avoided, minimized and reversed by developers, before any remaining impacts are offset. Based on environmental policy principle of "No Net Loss" of biodiversity alongside development. The global extent of biodiversity offset implementation under no net loss policies, by Joseph W. Bull and Niels Strange, is published in Nature Sustainability.

SEVERAL OFFSETS AROUND THE WORLD

- Oyu Tolgoi copper mine in Mongolia
- Bujagali hydropower project in Uganda
- Other end of the scale, grassland restoration offsets only one hectare in size to compensate for housing developments in the UK.

Until now, no one has had enough information to assess whether they work on an international scale.

OTHER ASPECTS OF BIO-DIVERSITY OFFSETS

- Ten thousand examples of nature sites created specifically to compensate for industrial impacts.
- The researchers found that across the world businesses are offsetting their development at a 'rapid rate' - from international corporations to small-scale landowners.

- Biodiversity offsets are being implemented very quickly despite being quite a recent policy idea. More than 153,000 square kilometres is a big chunk of land and—for the first time—we now have a dataset that can and will be used by two hundred countries across the world to refine "no net loss" policies, seeking to protect our natural environment.'
- 'No Net loss' policies are the point at which the project-related impacts on biodiversity are balanced by measures taken to avoid and minimize their impacts.
- Emerging economies (particularly in South America) were more dominant in terms of global offsetting and most projects are very small.
- The researchers also note that the overwhelming majority (99.7%) of projects are implemented by law rather than on a voluntary basis.



(Scan the QR code to watch the video)

Notes

IMPACT OF OCEAN WARMING ON GREAT SOUTHERN REEF



(Click on the above image to watch the video)

GREAT SOUTHERN REEF TO LOSE HUGE SEAWEED HABITAT TO OCEAN WARMING

UPSC Perspective – GS Paper 3, Environment

WHY IN NEWS?

Great Southern Reef is losing seaweeds because of increasing global temperature.

WHERE IS GREAT SOUTHERN REEF



Great Barrier Reef is in the North coast of the Australia while Great Southern Reef is located in the south of the Australian continent.

► Coral Reefs are made by automatic natural processes and they are formed by polyps organisms over a long period of time, usually thousand years. Polyps are made of Limestone and they are fixed at their position.

Reefs are formed by layer within layer of polyps

► Research into the future of Australia's "other reef" –the Great Southern Reef – shows that even under the most optimistic carbon emission scenarios, ocean warming is likely to cause substantial loss of critical habitat-forming seaweeds by 2100. Undesirable plants are called 'weeds' but in the ocean nothing is desired by mankind, but the reefs and other vegetation are formed by nature itself.

THE PUBLISHED RESEARCH ON SOUTHERN REEF:

► The research was published in Diversity and Distributions. The Great Southern Reef is a massive series of reefs with extensive kelp seaweed forests that extend around Australia's Southern coastline, covering around 71,000 sqkm from Brisbane to Kalbarri.

► We looked at the present and future distribution of 15 large dominant seaweed species and found they would lose between 30-100 percent of their current area to ocean warming even under the optimistic most scenarios where we aim to limit global warming to less than 2C.

► This is bad news because these seaweeds support our globally unique marine biodiversity and fisheries such as abalone and rock lobster, Australia's most valuable fisheries.

► Currently dominant species such as common kelp and strap weed were predicted to lose nearly half of their present distribution to become compressed in pockets on the south coast.

► Other seaweeds such as giant kelp, bull kelp and crayweed were predicted to become extinct from the Australian continent.

► The socio-economic as well as ecological consequences of these reductions of habitat-forming seaweeds could be devastating.

► These seaweeds are the trees of the oceans and the foundation of kelp forests that support ecosystem services such as biodiversity and fisheries resources worth more than \$10 billion per year in Australia.



(Scan the QR code to watch the video)

Notes

MARINE VEGETATION TO MITIGATE OCEAN ACIDIFICATION



(Click on the above image to watch the video)

MARINE VEGETATION CAN MITIGATE OCEAN ACIDIFICATION

UPSC Perspective – GS Paper 3, Environment and Mains

WHY IN NEWS?

Water present in the Ocean is gradually becoming acidic but marine vegetation can mitigate this acidification of oceans of the world.

U OF CALIFORNIA'S RESEARCH

- pH value of ocean water is gradually reducing below 7, which is the indication of any liquid becoming acidic (if the pH value of any liquid is above 7, it becomes alkaline).
- Reason of this regression is increased amount of CO₂ in the environment and this CO₂ reacts with the H₂O and thus forming Carbonic Acid (H₂CO₃)
- Marine plants and seaweeds in shallow coastal ecosystems can play a key role in alleviating the effects of ocean acidification, and their robust population in shoreline environments could help preserve declining shellfish life, according to a study by University of California.
- The marine plants in the vicinities of oceans and seas they absorb the redundant CO₂ of the area and use them in their botanical activity and thus creating less intense carbonic acid.
- In a new study on the Pacific Coast, determined that marine plants and seaweeds decrease the acidity of their surroundings through photosynthesis.
- Their findings suggest that maintaining native seawater vegetation could locally lessen the acidifying effects of rising CO₂ levels on marine animals who are sensitive to ocean pH, which has declined since preindustrial times.
- About 90 percent of fishery catch comes from coastal ecosystems. Any coastal pH decrease has a major impact on animals such as corals, oysters and mussels, whose shells and skeletons can become more brittle in low-pH environments.
- This is a major concern for shellfish fisheries, which contribute over \$1 billion annually to the U.S. economy while providing more than 100,000 jobs.

- Efforts to conserve marine plants and seaweeds in shoreline habitats, including where commercial seafood is harvested.
- The environmental and economic consequences resulting from ocean acidification are dire
- "Decreasing CO₂ emissions is still the No. 1 most important way to protect our marine ecosystems, but our research indicates that marine life also has substantial control over coastal pH."

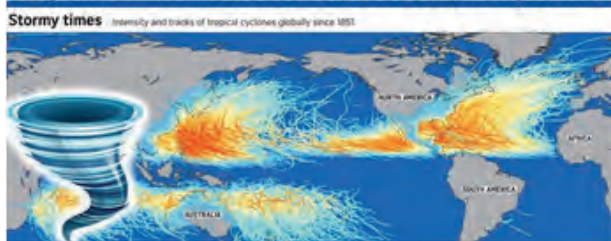


(Scan the QR code to watch the video)

Notes

TITLI CYCLONE

Why RIMES has called it a Rarest of Rare cyclone?



(Click on the above image to watch the video)

TITLI CYCLONE IS 'RAREST OF RARE'

UPSC PERSPECTIVE

- Regional Integrated Multi-Hazard Early Warning System (RIMES)
- Prelims -UPSC
- Impact of such rare cyclones on coast as well as hinterlands.
- Mains Paper 1: Geography | Important Geophysical phenomena such as earthquakes, Tsunami, Volcanic activity, cyclone.

WHY IN NEWS?

- The Regional Integrated Multi-Hazard Early Warning System (RIMES) for Africa and Asia has termed 'Titli', the severe cyclonic storm that devastated Odisha in October, as 'rarest of rare'.
- Part of Odisha

WHY RAREST?

- More than 200 years of cyclone track history of the Odisha coast reveal that the Titli cyclone is the rarest of rare.
- The severe cyclone had changed its path after landfall.

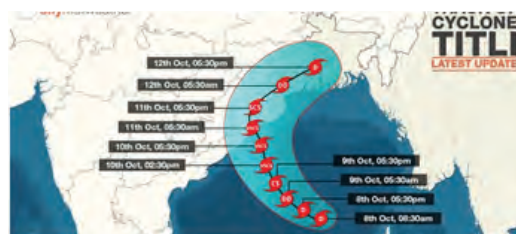
RECURVATURE AFTER LANDFALL



- When the eye of the storm passes over land, it is classified as making landfall.

- The eye of a hurricane has comparatively light winds and mild weather, while the eyewall is a ring of thunderstorms surrounding the eye.
- The eyewall can actually hit land without the cyclone "making landfall". E.g.: Hurricane Sandy made landfall in Cuba and Jamaica, but it was Haiti that was hit hardest.
- Retaining its destructive potential after landfall,
- Recurvature away from the coastal areas for more than two days,
- No synthetic track projection available to capture the Titli, type of cyclones.
- Damage to both life and property caused in interior districts.

DANGER IS NOT LIMITED TO COAST



Timeline of the titli cyclone is mentioned in the above picture

MOVEMENT OF CYCLONE

- The cyclones that typically strike the Indian neighborhood in the northern hemisphere rotate anticlockwise.
- Their normal behavior is to derive strength from the moisture in waters such as the Bay of Bengal, move west, incline in a northerly direction and peter out into the sea or land, depending on their origin.
- In a re-curling cyclone, the cyclone gets a sort of second wind when it is on the wane.
- It is deflected right or eastwards. This is due to air currents in the local atmosphere that push cold air from the poles towards the equator and interfere with cyclone formation. That is what makes them 're-curling.'
- In the southern hemisphere, the cyclones spin clockwise and therefore also re-curve in the opposite direction.
- A challenge with re-curling cyclones is that it is hard for weather models to pick them early on — as was the case with Ockhi — and so they pose unique challenges in terms of hazard preparedness and disaster management.

ABOUT RIMES

► RIMES, is an intergovernmental body, registered under the United Nations. It is being owned and managed by 45 collaborating countries in Asia Pacific and Africa Region. The programme unit of the agency is located in Thailand. At present, India is chairing RIMES.

► It was established in 2009 and was registered with UN in July 2009.

► It operates from its regional early warning centre located on campus of Asian Institute of Technology in Pathumthani, Thailand.

► It has evolved from efforts of countries in Africa and Asia in the aftermath of the 2004 Indian Ocean Tsunami.

WHAT CAN WE LEARN FROM THIS?

► The Odisha State Disaster Management Authority (OSDMA) faced challenges in anticipating and managing Titli's impact due to the lack of impact-based, actionable early warning information and prior experience not only in India but also elsewhere.

► The OSDMA, by learning the lessons from Titli cyclone, could evolve measures to minimize impacts in both coastal and non-coastal regions more effectively in future.

► The RIMES has recommended that a detailed risk assessment has to be carried out for Odisha to understand the risks in the light of the Titli devastation.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

RIISING WATER USAGE IN ENERGY SECTOR

WHAT IS IT ABOUT

Water demand in the energy sector is increasing and in the forthcoming years it will increase more and the water consumption in this area needs to be reported.

WATER CRISIS IN INDIA

► CWMI (Composite Water Management Index) and it is compiled and published by NITI Ayog and according to the latest index 600 million people face extreme water stress in the nation.

► India's water quality is at 120th rank out of 122 nations in Water Quality Index, Published by UNEP under the GEMS (Global Environment Monitoring System)

► According to the report in WQI, India can lose 6% of GDP by 2030 by dint of the extreme water crisis, which may further exacerbate the economy of the nation. The prime reason may be the huge gap between demand & supply. This plight may pose some deleterious repercussions in primary or human resources, both. Water's lacunae will further worsen the health of the people and so the standard of living and further leading to the worsening of the productivity of the labor in India. There are many industries either totally or partly dependent over the water and thus this negligence towards the water management will further deteriorate a very considerable part of the industry.

DEPENDENCY OF POWER SECTOR

► In the year 2015, the CWC (Central Water Commission) has predicted that the sectorial requirement of water will increase steeply between 2030 and 2050. This requirement will be for the domestic as well as industrial purposes.

► Power sector alone, water consumption was 0.62% in 2010. By 2030, this percentage will increase up to 1.37% and by 2050, it may be 8.98%.

► Thermal power plants exclusively needs high amount of water and 40% of the thermal power comes from those terrains where water stress is considerable. It is estimated that by 2030, more than 70% of the India, will face a stiff competition among its industries (Agriculture, Urban or Industrial) for water resources.

WAY FORWARD

Three factors were highlighted by CWMI:

- 1) Limited Coverage
- 2) Unreliable Data
- 3) Coordination and sharing between different departments

On the basis of these three factors, CWMI recommends some solutions:

- 1- Data of daily water withdrawal and consumption should be reported and it should be made mandatory which will depict the real time picture of water consumption and can further report about the consumer (industry or domestic) is complying with the norms and rules or not.
- 2- Implementation of MoEF&CC notification on water should be in stern and strict manner

ROLE OF CWMI

- Public national platform to provide key information on water
- Monitoring performances of the indicators
- Improve Transparency
- Encourage competition among the states as which state has fared well in good water management.
- The index also shows that the water scarce states have shown a better performance in management of the water.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE

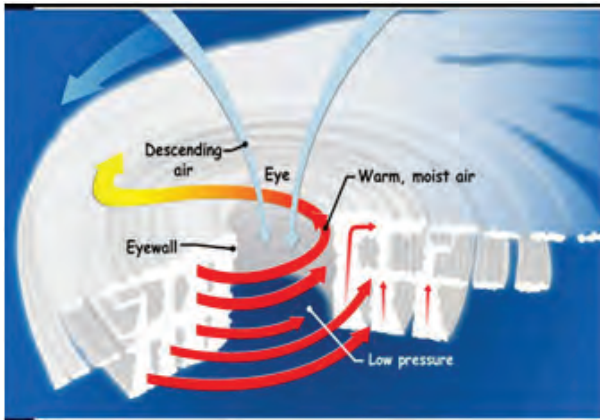
- GS3 : Disaster management

WHY IN NEWS ?

- Cyclonic Storm Phethai is the sixth named cyclone of 2018 North Indian Ocean Cyclone season. The previous five named cyclones are Sagar, Mekunu, Luban, Titli and Gaza.

WHAT IS A TROPICAL CYCLONE?

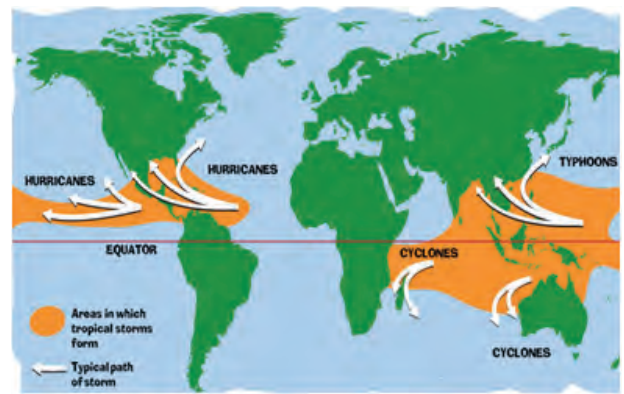
- The IMD says, "A tropical cyclone is an intense low pressure area or a whirl in the atmosphere over tropical or sub-tropical waters, with organised convection (i.e. thunderstorm activity) and winds at low levels, circulating either anti-clockwise (in the northern hemisphere) or clockwise (in the southern hemisphere)"



CAUSES OF A CYCLONE :

- A cyclone is formed when a warm temperature of the sea reaches a threshold level and the wind structure is rising. Derive their energy from the warm tropical oceans and do not form unless the sea-surface temperature is above 26.5°C.

DIFFERENT NAMES OF CYCLONE :



RECENT CYCLONE IN NORTH INDIAN OCEAN REGION :

- The North Indian Ocean is the most potential source for formation depressions and cyclonic storms.
- This year, it has already been the source for two cyclonic storms 'Sagar' (May 16 to 20, landfall in Yemen) and 'Daye' (September 19 to 22, landfall Odisha), one extremely severe cyclonic storm 'Mekunu' (May 21 to 27, landfall Yemen), two very severe cyclonic storm 'Luban' (October 6 to 15, landfall Yemen), and 'Titli' (October 8 to 12, landfall Odisha) and two severe cyclonic storms 'Gaja' (November 10 to 20, landfall Tamil Nadu) and the latest 'Phethai' (December 13 to 1-77, landfall Kakinada).

DESTRUCTIONS CAUSED BY CYCLONE PETHAI :

- Cyclone Pethai has affected communication and transportation in most of south India mainly in East and West Godavari, Vishakhapatnam, Krishna Districts and Yanam district of Puducherry. Trains and flights got canceled due to heavy rains and winds at around 80 KMs per hour. As per reports around 20,000 people have been evacuated and sheltered in relief camps.

Cyclone Management :



CATEGORIES	Max wind (km/h)	Typical effect
5	>280	Extremely dangerous with widespread destruction.
4	280	Significant roofing and structural damage. Many caravans destroyed and blown away. Dangerous airborne debris. Widespread power failures.
3	225	Some roof and structural damage. Some caravans destroyed. Power failure likely.
2	170	Minor house damage. Significant damage to signs, trees and caravans. Heavy damage to some crops. Risk of power failure. Small boats may break moorings.
1	125	Minimal house damage. Damage to some crops, trees and caravans. Boats may drag moorings.



(Scan the QR code to watch the video)

Notes

STRUCTURAL REFORMS FOR DECARBONISING INDIA



(Click on the above image to watch the video)

UPSC PERSPECTIVE

- **Prelims:** Council on Energy, Environment and Water (CEEW)
- **Mains:** Need of decarbonisation in India and hurdles in achieving it.
- **Mains Paper 3:** Economy | Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

ISSUE

- India **surpassed France** to become the **sixth largest economy** of the world.
- It is also one of the world's **fastest-growing economies**, poised to become the **third-largest by 2028**.
- **Rapid economic growth** is often driven by an increase in energy **demand and consequently higher carbon dioxide emissions**.
- In the lead-up to the **Paris Agreement on climate change**, India committed to cutting its carbon emissions intensity of **GDP by 33% to 35% below 2005 levels by 2030**, and to **achieving 40% of its electricity-generation capacity from non-fossil sources by the same year**.

INDIA'S DECARBONISATION

- First, India's **electricity pricing policy needs to be significantly overhauled**. Current policy subsidises electricity prices for agricultural and residential consumers, while penalising **commercial and industrial consumers**.
- **Second, revamping the market design** of India's electricity sector is a must. **For absorbing a greater percentage of variable renewable energy (VRE)**, i.e. solar and wind, into the grid, conventional power plants, especially those running on coal, would need to operate differently. Currently, most coal power plants operate to serve the baseload demand.
- In the future, **with a higher share of VRE in India's electricity mix**, such plants would primarily operate to **only serve mid-peak demand**, peak demand and super-peak demand. The way we currently view Indian electricity markets need to fundamentally change.

- **Third, banking sector reforms** are pivotal for meeting India's ambitious renewable energy goals. The banking sector has **been plagued by the issue of non-performing assets**. Significant progress has been made by the present government in addressing this issue. **Arguably, this is still a work in progress**. A risk-averse banking sector means less capital and higher interest rates for unconventional energy **businesses, invariably the renewable energy sector**.
- CEEW's research has highlighted in the past that the cost of finance **contributes to 60% of the total cost of solar electricity in India**. To reach scale, and that too rapidly, availability of adequate capital at favourable interest rates will make or break the transition to clean energy sources. **Only banking sector reforms can ultimately assure this**. India is moving in a positive direction on this front.
- **Finally, India's bond market needs to take off**. **Experts have** highlighted that while green bonds are being issued for supporting renewable energy, India ironically does not have a well-functioning larger bond market.

WAY FORWARD

- Under a **changing climate**, **extreme weather events like the floods in Kerala** are becoming more common across the country.
- India needs to meet its decarbonisation goals not only for meeting its climate commitments and economic targets, but also for fulfilling its **human development objectives**.



(Scan the QR code to watch the video)

Notes

Global Burden of Disease report by



(Click on the above image to watch the video)

[Global Burden of Disease Report by Lancet](#)

HIGHLIGHTS OF THE REPORT:

- ▶ 26% of global premature deaths and disease burden are due to air pollution.
- ▶ In India, 1/8th deaths happened because of ailments by air pollution. Air pollution infuses more risk of death than even smoking.
- ▶ Average life expectancy – Life expectancy depends on some factors e.g. birth year, current age of the individual, demographic factor etc.
- ▶ The reports highlights that average life expectancy would have been increased at least by 1.7 years higher if air pollution levels were less than the minimum level causing health loss.
- ▶ Average exposure norms – WHO recommends average exposure norms being at 10 micrograms per cubic meter for PM 2.5. In every state in India has way more than this recommendation.
- ▶ National Ambient Air Quality – recommends the limit in India of PM (Particulate Matters) being at 40 micrograms per cubic meter. In India, it is four times higher than that of WHO. It clearly states that air quality in India is deleterious.

WAY FORWARD

- ▶ **Agricultural Sector –**
 - 1) Agriculture is in the State list of constitution of India. So, the central govt. and state govt. should work in coherence.
 - 2) Improper mechanism to handle the agricultural wastes seldom leads to stubble burning.
 - 3) Mechanism to collect the farm residues
 - 4) Happy seeder machines should be frugally used. There should be auction to get the Happy Seeder machines to the farmers.
- ▶ **Rural Pollution** – Intensive usage of biomass, biogas, solar cookers would reduce the pollution caused by solid fuels for cooking purposes, accounting mainly for indoor air pollution.
- ▶ LPG connections under the UJWALA Yojna also don't reduce the solid fuels usage because of higher charges of refilling the gas cylinders.

- ▶ **Urban Pollution** – By the use of cleaner fuels can alleviate the environment. Pollution caused by the traffic vehicles is one hornet's nest in this scenario. Giving incentives on public transport can be a way.
- ▶ **Global Experiences** – By WHO, 14 out of 15 cities which are facing pollution belong to India. This emphasizes also to use proper policies. Cities like Mexico and Beijing can be exemplary in this area to take lessons from these cities.



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE

GS1 - geography & GS2 - polity

WHY IN NEWS?

► Prime Minister Narendra Modi announced the renaming of three islands of Andaman and Nicobar to mark the 75th anniversary of the raising of the Indian national flag by freedom movement icon Netaji Subhas Chandra Bose during the fight for India's independence.

NEW NAME OF ISLANDS :

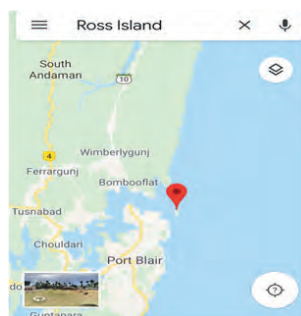
► The Ross Island was renamed as Netaji Subhas Chandra Bose Dweep, the Neil Island as Shaheed Dweep and the Havelock Island as Swaraj Dweep.

SIGNIFICANCE OF DECEMBER 30TH:

► On this day in 1943, Bose had suggested that Andaman and Nicobar Islands be renamed as Shahid and Swaraj Dweep respectively. During the World War II, the Japanese had captured the Andaman and Nicobar Islands, and Netaji came here as the Azad Hind Fauz led by him was an ally of the Japanese force. This year marks 75 years of the event.

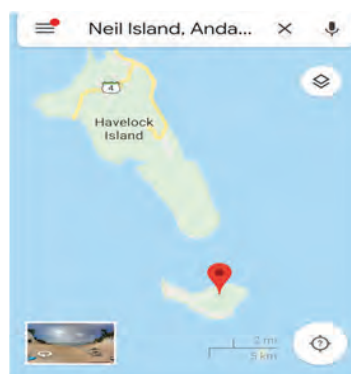
ROSS ISLAND :

The island is situated 3 km east from central Port Blair. From 1942 to 1945, the island was occupied by the Japanese. The Government House became the residence of the Japanese admiral for three years (from March 1942 to October 1945). It was during this period that Subhas Chandra Bose, who took the help of Japanese in his fight against the British, stayed at the Island for a day in December 1943. Netaji also hoisted the national tricolor at the top of the Government House.



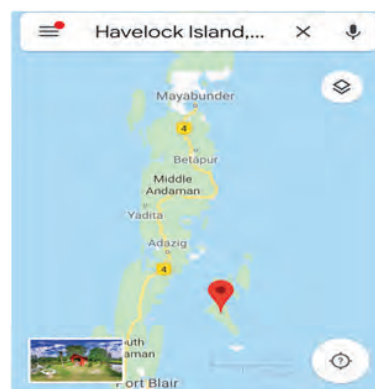
NEIL ISLAND :

► The island is named after the martyrs of Indian independence movement and this name of the island was initially proposed by the Indian freedom fighter Netaji Subhas Chandra Bose. He earlier name, Neill island, was named after British Brigadier general James Neill, who had fought on the side of the British East Indian company in the Sepoy Mutiny of 1857.



HAVELOCK ISLAND :

► The island is named after the concept of Swaraj of Indian independence movement and this name of the island was initially proposed by the Indian freedom fighter Netaji Subhas Chandra Bose.



(Scan the QR code to watch the video)



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

- GS 3 - Environment & Disaster management

WHY IN NEWS ? :

- A coal mine in Meghalaya's East Jaintia Hills collapsed recently, trapping at least 15 workers who are feared dead.
- It has thrown light on a dangerous procedure known as "rat-hole mining".

WHAT IS RAT-HOLE MINING?

- It involves digging of very small tunnels, usually only 3-4 feet high, which workers (often children) enter and extract coal.
- The rat-hole mining is broadly of two types - side-cutting and box-cutting.
- In side-cutting procedure, narrow tunnels are dug on the hill slopes and workers go inside until they find the coal seam.
- The coal seam in hills of Meghalaya is very thin, less than 2 m in most cases.
- In the box-cutting type, a rectangular opening is made, varying from 10 to 100 sq m.
- Through this, a vertical pit, 100 to 400 feet deep, is dug.
- Once the coal seam is found, rat-hole-sized tunnels are dug horizontally through which workers can extract the coal.

WHY IS IT VERY PREVALENT?

- In Jharkhand, the coal layer is extremely thick, where open-cast mining can be done.
- But no other method would be economically viable in Meghalaya, where the coal seam is extremely thin.
- Removal of rocks from the hilly terrain and putting up pillars inside the mine to prevent collapse would be costlier.

- So despite a ban, rat-hole mining remains the prevalent procedure for coal mining in Meghalaya.
- Rat-hole mining is the locally developed technique and the most commonly used one.
- It is not regulated by any law, and coal extraction has been made by unscrupulous elements in a most illegal and unscientific manner.
- Meghalaya's annual coal production of nearly 6 million tonnes is mostly said to have come through rat-hole mining.

WHAT ARE THE IMPACTS?

- Ecology - Rat-hole mining in Meghalaya had caused the water in the Kopili river (flows through Meghalaya and Assam) to turn acidic.
- The entire roadsides in and around mining areas are used for piling of coal.
- This is getting to be a major source of air, water and soil pollution.
- Off road movement of trucks and other vehicles in the area causes further damage to the ecology of the area.
- Risk to lives - Due to rat-hole mining, during the rainy season, water flood into the mining areas resulting in death of many.
- If water has seeped into the cave, the worker can enter only after the water is pumped out.



WHAT ARE THE SHORTCOMINGS?

- The National Green Tribunal (NGT) has banned rat-hole mining in 2014, and retained the ban in 2015.
- The ban was on grounds of the practice being unscientific and unsafe for workers.
- The NGT order bans not only rat-hole mining but all "unscientific and illegal mining".
- But orders of the Tribunal have been violated without exception.
- The State Government has failed to check illegal mining effectively.
- It has also not framed the mining policy, mining plan and the guidelines as directed under the orders of the Tribunal.

- The state has in place the Meghalaya Mines and Mineral Policy, 2012; but the NGT finds it inadequate.
- **Protection** - Constitution's 6th Schedule intends to protect the community's ownership over its land and autonomy and consent over its nature of use.
- Coal mining currently underway in Meghalaya was a corruption of this Constitutional Provision.
- Private individuals with interests in earning monetary benefits from minerals vested under the land are engaging in coal mining.
- They are attempting to legitimize this act by claiming immunity through tribal autonomy over land ownership.

PRELIMS BITS : ABOUT COAL RESERVE IN INDIA :



- **Gondwana coal** makes up to 98 per cent of the total reserves and 99 per cent of the production of coal in India.
- The **carbon content in Gondwana coal** is less compared to the Carboniferous coal because of its much younger age.

- Gondwana coal forms India's metallurgical grade as well as superior quality coal.
- **Tertiary coal** 15 to 60 million years old. **Carbon content is very low.**
- Mainly confined to the extra-Peninsula [Jammu and Kashmir, Himachal Pradesh, Assam, Arunachal Pradesh etc.]
- Coal generally has low carbon and **high percentage of moisture and Sulphur.**
- **Important areas of Tertiary coal** include parts of Assam, Meghalaya, Arunachal Pradesh, Nagaland, Himalayan foothills of Darjeeling in West Bengal, Jammu and Kashmir, Uttar Pradesh, Rajasthan, Kerala, Tamil Nadu and the union territory of Pondicherry also bear tertiary coal reserves



(Scan the QR code to watch the video)

Notes



(Click on the above image to watch the video)

UPSC PERSPECTIVE:

- GS3 - Disaster management

WHY IN NEWS ? :

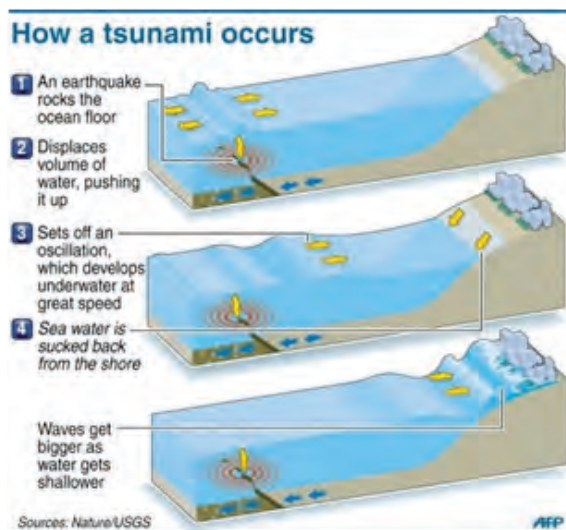
- On 22nd December 2018, Indonesia was hit by a Tsunami. As the giant tsunami waves crashed into coastal towns on the islands of Sumatra and Java, at 281 people were killed and 1,016 were injured.

DESTRUCTION CAUSED BY TSUNAMI :

- More than 220 people have been killed and 843 injured after a tsunami hit coastal towns on Indonesia's Sunda Strait.

CAUSES :

- The tsunami which struck the island on Saturday evening was caused by an undersea landslide resulting from volcanic eruption of Anak Krakatau, a volcanic island formed over years from the nearby Krakatau volcano.
- It was exacerbated by abnormally high tide because of the current full moon situation



VOLCANIC TSUNAMI OF INDONESIA :

The Tsunami which Indonesia witnessed on 22nd December is attributed to the collapse in the west-southwest flank of the Anak Krakatau volcano. The collapse resulted in millions of tonnes of rocky debris plunging into the sea. This resulted in the displacement of large volumes of water resulting in Tsunami waves.

PRELIMS BITS : ABOUT TSUNAMI :

- Tsunami is a Japanese word for "Harbour wave". They are also known as seismic sea waves.
- A tsunami can be caused by any disturbance that displaces a large water mass from its equilibrium position.
- The usual immediate cause of a tsunami is sudden displacement in a seabed due to submarine earthquakes sufficient to cause the sudden raising or lowering of a large body of water. The tsunami on December 26, 2004 was caused after an earthquake displaced the seabed off the coast of Sumatra, Indonesia.
- Large volcanic eruptions along shorelines, such as Krakatoa, have also produced notable tsunamis.
- A marine volcanic eruption can generate an impulsive force that displaces the water column and gives birth to a tsunami.



(Scan the QR code to watch the video)

Notes

SPICE OF THE MONTH

About Spice of the Month series

- This is an initiative aimed at improving answer and essay writing for civil services and state civil services examination.
- While preparing, the aspirants spend major time reading and revising from static books and monthly magazines but miss on how to make their answers richer in actual exam scenario.
- For e.g. a well written and high scoring answer may include some supporting examples or relevant data/quote, a proper definition to introduce or some big idea to conclude.
- Even in Essay Writing, not many students prepare a dedicated repository of good examples, quotations, data, etc. - which can make their essay more richer and readable.
- In this Monthly series, we try to put together such material (called as 'Spice') that can be directly used in your answers and essay.
- We believe that this material if used intelligently can give your answers an extra edge of at least 1 to 2 marks per question - which is all that is required to separate the topper from the rest.
- Last but not the least, our success will lie in developing this habit in each and every student - whereby they identify such material from their daily reading and use it to maximize their score by sprinkling (the spice) in right amounts in their writing.

Disclaimer:

The spice is an add-on to your existing preparation for CSE Mains. It is not a replacement of the static and current affairs preparation.

Definitions

Ethics	# Neutrality # Impartiality	<ul style="list-style-type: none"> ➤ Neutrality is the absence of bias which has either been declared or if undeclared, it appears to exist. ➤ Impartiality (or Objectivity or Fairness) is a principle of justice holding that decisions should be based on objective criteria, rather than on the basis of bias, prejudice, or preferring the benefit to one person over another for improper reasons. ➤ Impartiality is equal association while neutrality is non-association. ➤ Example: In a war, if a country is supplying weapons to both warring sides, it can be called impartiality but refusing to supply to both is neutrality in war.
	# Prudence	<ul style="list-style-type: none"> ➤ Prudence is the ability to govern and discipline oneself by the use of reason. ➤ It is considered to be the charioteer of the virtues. All other virtues achieve their "perfection" only when they are founded upon prudence. ➤ For e.g. tolerance without prudence can lead us to tolerate everything from Nazism to child abuse, while humility without prudence can lead to a doormat mentality.
	# Temperance	➤ Temperance is the espousal of moderation, marked by personal restraint.
	# Tolerance	➤ Tolerance is a fair, objective, and permissive attitude toward those whose opinions, practices, race, religion, nationality, etc., differ from one's own.
	# Conscience	<ul style="list-style-type: none"> ➤ Conscience is the inner sense of what is right or wrong in one's conduct or motives, impelling one towards right action. Or It is an inner voice that keeps you on the path of morality.
	# Accountability	<ul style="list-style-type: none"> ➤ Accountability means 'answerability' to a superior (and the public) for your actions. It is a means used to control and direct administrative behavior by requiring "answerability" to some external authority.

Examples
Polity

Centre-State	# Federalism # Decentralization	<p>New CRZ notification => powers for clearances with respect to CRZ-II (areas that have been developed up to or close to the shoreline) and III (areas that are relatively undisturbed) have been delegated to the State level.</p> <p>➤ Only such projects which are located in CRZ-I (Ecologically Sensitive Areas) and IV area covered b/w LTL and 12 nautical miles seaward) will require the necessary clearance from the Union Ministry.</p>
	# Data privacy # Judicial Activism # Checks & Balances	<p>Government is amending the Aadhaar Act to give all citizens an option to withdraw their Aadhaar number, including biometrics and the data. Aadhaar judgment in short:</p> <p>➤ SC disallowed private entities to use the unique number for verification</p> <p>➤ Linking Aadhaar with bank accounts and SIM cards was unconstitutional</p> <p>➤ Linkage of PAN with Aadhaar is valid</p>
Judiciary	# Criminal Justice System Reforms # Judicial Activism	<p>➤ In Asaram Case, it is alleged that as many as 10 witnesses have already been attacked and three witnesses have been killed, the court noted.</p> <p>➤ Supreme Court put in place a witness protection regime, noting that one of the main reasons for witnesses turning hostile was lack of security.</p>
	# Judicial reforms	<p>➤ NITI Aayog mooted All India Judicial Service (AIJS) for making appointments to lower judiciary through all India judicial services exam conducted by UPSC in order to maintain "high standards" in the judiciary.</p>
Governance	# E-Governance	<p>Union transport ministry has asked States to facilitate acceptance of driving licence and other documents like vehicle registration certificates in electronic format by enforcement agencies.</p>
	# Institutional decay	<p>➤ Despite coming to power in 2014 on an anti-corruption plank, the NDA government has not only failed to set up Lokpal, but did not hold even a single meeting of the search committee to find a Lokpal, according to RTI.</p> <p>➤ Supreme Court has said that posts in the CIC and in SICs are lying vacant and no effective steps have been taken to fill them.</p>
	# Regulatory Bodies # Indian Medicine # Medical Education	<p>Draft National Commission for Indian System of Medicine Bill, 2018:</p> <p>➤ Setting up National Commission with four autonomous boards for conducting overall education in Ayurveda, Unani, Siddha and Sowa Rigpa.</p> <p>➤ There are two common boards:</p> <p>➤ Board of assessment and rating to assess and grant permission to educational institutions of Indian systems of medicine,</p> <p>➤ Board of ethics and registration of practitioners of Indian systems of medicine to maintain a National Register and look into ethical issues</p>
Laws & Policies	# Gender neutral Laws	<p>➤ Government approved amendments to POCSO Act, 2012, to bring punishments for sexual assaults on boys on a par with those against girls.</p>
	# NRC & Humanity # Citizenship Laws	<p>➤ NRC process in Assam might trigger an unprecedented humanitarian crisis, top UN experts have said. They have cautioned that due to the process, the number of stateless citizens in the world could explode.</p>
	# 6th Schedule # Tribal Laws # Tribal Development	<p>Centre has readied a proposal to strengthen autonomous councils in tribal areas in the Northeast amidst demands for:</p> <p>➤ Increasing elected members, particularly in Meghalaya and Assam</p> <p>➤ Giving mines and minerals to these councils</p> <p>➤ Increase representation of women</p> <p>➤ Elections to these councils to be conducted by State election authorities</p>
	# Anti-defection # Electoral reform	<p>Vice-President stressed on the need for an amendment to the Anti-Defection Law, making it mandatory for the Speaker/Chairman of Assembly/Council to dispose of petitions on defections within a time frame.</p>

Agriculture	# Farm loan waivers # Fiscal prudence	<p>► Governments should resist farm loan waivers as it often goes to the best connected rather than to the poorest. It also creates fiscal problems for the State. Government-imposed credit targets are often achieved by abandoning appropriate due diligence, creating the environment for future NPAs.</p>
	# Saving Indigenous breeds	<p>Punganur cow, considered one of the world's smallest breeds of cattle, is said to be on the verge of extinction due to cross-breeding conducted by farmers, according to livestock journals. (also read Gokul Mission).</p>
	# Technology for farmers	<p>TN government is distributing satellite phones to fishermen involved in deep sea fishing to assist in their navigation while in the high seas. ISRO has designed the NaVIC (Indian Regional Navigation Satellite System) receivers.</p>
Industry	# Illegal mining	<p>Collapse of a coal mine in Meghalaya's East Jaintia Hills, trapping at least 15 workers, has thrown spotlight on "rat-hole mining". Although banned, it remains the prevalent procedure for coal mining in Meghalaya.</p> <p>► Rat hole mining involves digging of very small tunnels, usually only 3-4 feet high, which workers (often children) enter and extract coal.</p> <p>► NGT banned it in 2014, and retained the ban in 2015, on grounds of it being unscientific and unsafe for workers.</p> <p>► It had also caused the water in the Kopili river (it flows through Meghalaya and Assam) to turn acidic.</p>
Services	# Inclusive Growth # Rural Industrialization	<p>► India Post launched its own e-commerce website to help sellers, particularly rural artisans and SHGs sell their products across the country by leveraging the vast physical and IT network of the Department of Posts.</p>
Startups	# Promoting Startups # Job Creation	<p>SEBI has lined up relaxations for new-age ventures in sectors like e-commerce and data analytics to raise funds and get their shares listed on stock exchanges.</p> <p>► The proposals include renaming the 'Institutional Trading Platform' that the regulator had created for such listings as 'Innovators Growth Platform.'</p>
		<p>► SEBI is coming up with a 'sandbox' policy to support development of financial technologies for the capital market.</p> <p>► Sandbox policy will allow companies to test products in a closed environment, a particular geography or among a set of users, before they are allowed roll out commercially meeting all regulations.</p>
Labor & Employment	# Employment # Labor vs. Technology	<p>► Employment challenge that India faces — close to 15 million waiting to be absorbed in the industrial and services sectors every year — is possibly bigger than that faced by any other country (except China) in the world.</p> <p>► It cannot be resolved with the technologies that foreign companies bring into India, which tend to be labor saving. What India requires, on the other hand, are technological advances that create new economic opportunities and absorb — not displace — labor.</p>
Miscellaneous	# Responsible Capitalism	<p>► Chanel said it would no longer use exotic animal pelts, making it the first luxury fashion house to turn its back on crocodile and lizard skin, a move hailed by animal rights groups. It was becoming difficult to source high-quality pelts ethically.</p> <p>► Dozens of top fashion industry firms have pledged at the UN climate talks to reduce their combined greenhouse gas emissions by 30% by 2030.</p>
	# Digital Currency	<p>► At least 15 central banks are interested in national digital currencies, according to a recent report from the International Monetary Fund (IMF).</p> <p>► Digital money means people are using less physical cash, and so the banks could reduce costs by replacing physical banknotes with digital ones.</p> <p>► Central banks will need to decide if their system should function like a decentralized cryptocurrency—or not.</p>

	# Digital Currency	<p>► India began gender budgeting in 2004 and currently 16 states undertake this exercise which is aimed at reducing gender inequalities at scale. It has been found:</p> <p>► States with gender budgeting showed significantly greater reduction in spousal violence between 2005-'06 and 2015-'16 than those without it, according to a study using data from NFHS 3 (2005-'06) and 4 (2015-'16).</p> <p>► Gender budgeting is linked to improvements in girl education, especially in the field of primary education.</p>
--	--------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Society & Human Development

Women & Child	# Women's security	<p>► J&K has become the first State in the country to bring a law to prevent people in power from exploiting subordinates sexually.</p> <p>► Governor approved an amendment to the Ranbir Penal Code (RPC), to insert a section to provide for the offence of "sextortion."</p>
	# Girl Education # Promoting Competitive Federalism	Karnataka government will bear the educational expenses of girl students pursuing pre-university, graduation , and post-graduation courses in government colleges of the State, from the present academic year. This would help about 3.17 lakh students across the State and would cost ₹95 crore annually.
	# Child protection and development	<p>► Draft National Child Protection Policy</p> <p>► All organizations must have a code of conduct based on "zero tolerance of child abuse and exploitation".</p> <p>► Organizations to lay down that employees don't use language or behaviour that is "inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate".</p> <p>► Designated staff member to ensure that procedures are in place to ensure the protection of children as well as to report any abuse.</p> <p>► Any individual who suspects physical, sexual or emotional abuse must report it to the helpline number 1098, police or a child welfare committee.</p> <p>Unlike the National Child Policy, 2013, it doesn't talk about children who may need special protection: including those affected by migration, communal or sectarian violence, children forced into begging or in conflict with the law, and those infected with HIV/AIDS. It also doesn't talk about the role of the State for ensuring the protection of child rights or addressing local grievances.</p>
Tribals	# Tribal Development # Civic activism	► Tribal groups in Rajasthan have demanded that the next elected government in the State reveal the status of each of the UN SDGs with reference to tribal communities and declare their status targets .
Health	# Health Security # Weak regulation # Pharmaceutical Industry	<p>► In a recent study by Manipal College, it has been found that of the 110 anti-TB (tuberculosis) Fixed Dose Combinations (FDCs) available in India, only 30% have been approved by the Central Drugs Standard Control Organization (CDSCO). In malaria FDCs, only 40% have been approved.</p> <p>► An FDC or combination product is a formulation with more than one active pharmaceutical ingredient (API) in a fixed ratio of doses formulated into a single dosage form.</p>
	# Healthy India # Green India	► New Delhi Municipal Council (NDMC) has tied up with a Hyderabad-based company to set up, operate and maintain world-class Public Bike Sharing (PBS) System . This will help improve fitness, bridge the gap of last-mile connectivity and reduce pollution.
Education	# E-Learning # Vernacular Learning	► Ganjam district administration is developing a free mobile app to help students of Odia medium schools enhance their knowledgevia tutorials in Odia.

Culture	# Balkanization of Religion # Religious harmony	► Government has communicated that it was not possible to accede to the State's recommendation to grant minority religion status to Lingayat/Veerashaiva community as they are considered "a religious sect of Hindus." ► The demand for separate status by Lingayats and Veerashaivas has been considered earlier also and it was observed that Lingayats have always been classified under Hindu sect ever since 1871 census ► If Lingayats/Veerashaivas were to be treated as a separate religion by providing separate code other than Hindu, all members of the Scheduled Caste professing the said religion would lose their status as SC along with the consequential benefits available them.
	# National Unity	► PM has announced National Unity Award on the lines of Padma awards . It would be given to any Indian who has contributed to national unity in any manner.

IR, Defence & Security

External Security	# Defense indigenization # Make in India	► Adani Group formally opened unmanned aerial vehicles (UAV) complex in Hyderabad in association with Israel . It is the first such manufacturing facility in India and the first outside Israel to manufacture the Hermes 900 medium altitude long endurance UAV. ► The development of the indigenously-designed heavy artillery gun, the Advanced Towed Artillery Gun System (ATAGS) , is an advanced stages. ► ATAGS is being developed by DRDO on two parallel tracks: one prototype is being built in partnership with Tata Power and the other with Bharat Forge . ► Army recently inducted its first modern pieces of artillery in 30 years: the M777 Ultra-Light Howitzer from the U.S. and the K9 Vajra-T self-propelled artillery gun from South Korea .
	# Defense preparedness	► Indian Navy joined a select group of naval forces in the world when it inducted its first non-tethered Deep Submergence Rescue Vehicle (DSRV) system. DSRV is used to rescue crewmembers from submarines stranded under water in high seas. ► As per the government policy of " One Border One Force ," the entire stretch along the China border was assigned to the ITBP in 2004, replacing Assam Rifles in Sikkim and Arunachal Pradesh for border guarding duties. According to submissions made by the Home Ministry before a parliamentary committee: ► Nearly 80% of Border Outposts (BOPs) do not have clean drinking water ► Over 40% are unconnected by road . ► Only 20% have a regular supply of electricity, the rest depend on generators
	# Space Command	► U.S. President has ordered the creation of " Space Command ", a new organizational structure within Pentagon that will have overall control of military space operations. It would integrate space capabilities across all branches of the military. ► It will be separate from Mr. Trump's goal to build an entirely new branch of the military called " Space Force ," which has not received Congress approval.
	# Social Media	► Government has asked social media platforms to emulate their practices in the U.K. in using AI tools to identify and take down content inciting violence . Ministry has reduced the time limit to take down such posts and videos to about 4hours from about 36 hours . ► France is looking into claims that Russia-linked social media accounts are trying to stir up trouble by spreading misinformation designed to amplify the 'yellow vest' protests.

	# Fake News	<ul style="list-style-type: none"> ▶ Government has proposed amendments in the IT Act 2000: ▶ Provide info sought by govt. agency within 72 hours ▶ Enable tracing the originator of the information ▶ Disable access to unlawful content within 24 hours ▶ Deploy automated tools to identify and disable access to unlawful content ▶ Preserve information for at least 180 days for investigation against 90 days
	# Data Privacy	<ul style="list-style-type: none"> ▶ Facebook gave over 150 companies access to users' data by exempting them from its usual privacy rules, The New York Times has revealed. ▶ These included the ability to read private messages, names of users' friends, and access to their contact information. This is all despite public statements from Facebook that it had ended this type of sharing years earlier.
	# Naxalism # From Bullet to Ballot	<ul style="list-style-type: none"> ▶ Pankena and Palmela villages which were infamous for the naxalite violence acts had reported 93.3% and 93.19% voting respectively. The high polling has been attributed to the declining faith in naxalites and the villagers welcoming the developmental programmes in their village.
Bilateral Relations	# India-Bhutan	<ul style="list-style-type: none"> ▶ India to commission the flagship 750 MW Mangdechhu hydropower project in Bhutan. It will mark a highpoint in bilateral ties.
	# India-Maldives # Countering China's debt trap diplomacy	<ul style="list-style-type: none"> ▶ India has declared a financial package of \$1.4 billion for Maldives to support its human-centric development plans. The package comes as Maldives is facing a debt of \$3.2 billion with China.
	# India-Pak-China # China's military ambitions via BRI	<ul style="list-style-type: none"> ▶ Pakistani Air Force and Chinese officials are on to a secret proposal to expand Pakistan's building of Chinese military jets, weaponry and other hardware. ▶ The confidential plan, reviewed by The New York Times, would also deepen the cooperation between China and Pakistan in space, a frontier the Pentagon recently said Beijing was trying to militarise after decades of playing catch-up. ▶ Chinese officials have said the Belt and Road is purely an economic project with peaceful intent. But with its plan for Pakistan, China is for the first time explicitly tying a Belt and Road proposal to its military ambitions.
World Affairs	# Multi polar World	<ul style="list-style-type: none"> ▶ President Trump announced withdrawal from Syria and declared an end to America's role as the global "policeman".
	# New Arms Race	<ul style="list-style-type: none"> ▶ Russia successfully tests hypersonic missile, the Avangard system which will be ready to use from 2019. It could fly at 20 times the speed of sound and maneuver up and down, meaning that it could breach defence systems. ▶ This comes amidst the backdrop of US plans to pull out of three-decade-old Intermediate-Range Nuclear Forces Treaty (INF). Russia has laid out plans to develop missiles banned under the deal if the U.S. abandons it.
Miscellaneous	# Diplomatic Success # Extradition	<ul style="list-style-type: none"> ▶ The extradition to India of British businessman Christian Michel, alleged to be the middleman in the AgustaWestland helicopters case who bribed officials to secure the deal, is a diplomatic success. ▶ India's track record with securing the extradition of fugitives from justice is modest with only about a third of all requests since 2002 being accepted.

Geography & Environment

Policy	# Environment Accounting	<p>► Padma Shri awardee, green activist from Uttarakhand, Dr Anil Prakash Joshi strongly advocated the need for introducing the concept of Gross Environmental Product (GEP) to indicate overall health of environment in India.</p> <p>► It is high time that along with GDP, which indicates economic health, the country and the states collected data on forests, water sources, quality of air and soil and measured the GEP to know the health of our eco-system.</p>
	# Expanding EIA	<p>► New thermal power plants (TPPs) in India will now have to comply with 'human health and environment' criteria as part of their mandatory environmental clearance procedures.</p> <p>► This is quite significant and a big first step as Environment Impact Assessment (EIA) in India was silent on community health and occupational health and safety.</p>
Biodiversity	# Biodiversity conservation	<p>► Ganjam is the flag-bearer of sparrow conservation in Odisha. House sparrow conservation is being done through artificial nests. The aim is to get local people involved in house sparrow conservation through artificial nests.</p>
	# Transnational Wildlife Crime	<p>► The governments of India, Nepal and Bhutan are actively considering having a joint task force for allowing free movement of wildlife across political boundaries and checking smuggling of wildlife across the Kanchenjunga Landscape, a trans boundary region spread across Nepal, India and Bhutan.</p>
Environment	# Marine pollution # Environmental Degradation	<p>► Tests on over 100 sea turtles — spanning three oceans and all seven species — have revealed micro-plastics in the guts of every single turtle, scientists say.</p> <p>► Synthetic particles were found, the most common being fibers, which can come from clothing, tyres and cigarettes, and equipment such as ropes/nets.</p> <p>► According to National Centre of Coastal Research (NCCR), tourism and fishing contribute most of plastic litter on beaches. India needs a national marine litter policy to control/manage waste on land and prevent its entry into the marine environment.</p>
	# Water conservation	<p>► In a bid to promote conservation of groundwater, the Central Ground Water Authority (CGWA) has notified a water conservation fee (WCF) that industries will need to pay on groundwater extraction starting from June.</p> <p>► Individual households that draw groundwater using a delivery pipe of a greater than 1" diameter, too, will need to pay a WCF. However, the agriculture sector — the largest consumer of groundwater — will be exempt from the fees.</p>
	# Environment protection	<p>► Bioplastics — often promoted as a climate-friendly alternative to petroleum-based plastics — may lead to an increase in GHG emissions. They may trigger cropland expansion and conversion of forest areas to arable land as they are derived from renewable sources such as maize, wheat and sugarcane. Forests absorb considerably more CO₂ than maize or sugar cane annually.</p>
Forests	# Forest Cover in China	<p>► China will increase its green cover by building 20,000 national forest villages by 2020 in the country.</p>
Clean Energy	# Bio fuels	<p>► For the first time, an An-32 transport aircraft of the Indian Air Force (IAF) flew with blended bio-jet fuel produced from Jatropha oil. This has the dual benefit of reducing the carbon footprint as well as usage of fossil fuels.</p>
	# Flood management # Disaster management	<p>► China is building 30 'sponge cities' that can soak up floodwater and prevent disaster. Porous asphalt pavement absorbs the water and retains it, and when there's a need, it can also release the water it has stored.</p> <p>► Hebi City is one of the country's model sponge cities. In 2015, the city designated nearly 30 square kilometers as a pilot area for sponge city construction.</p>

Disasters	# Disaster Prevention	<p>► Odisha State Disaster Management Authority has carried out an experiment of sending mass disaster alert SMSes to mobile users as part of its project of Early Warning Dissemination System.</p>
	# Disasters & Biodiversity	<p>► Indonesia's tsunami has raised fears that another deadly wave could wipe out the few dozen Javan rhinos still living in the wild. There are believed to be fewer than 70 of the critically endangered species in a national park not far from the volcano that triggered Tsunami.</p>

Science & Technology

	# Space	<p>► India's first six-tonne-class 'big bird' in space, advanced communication satellite GSAT-11, was put into orbit from European spaceport in Guiana in South America. Its mission is to enable high-speed satellite-based Internet services to users in rural and remote areas and to businesses down home over the next 15 years.</p> <p>► ISRO has completed the design for the Small Satellite Launch Vehicle (SSLV), the 'baby rocket' billed as the quickest way to space for small-size satellites. SSLV promises on-demand access to space, with the rocket assembly taking a mere 15 days and minimum personnel to do it.</p> <p>► Govt. has approved the ambitious Gaganyaan program, which will send three Indian astronauts to space for up to seven days by 2022. As part of the program, two unmanned flights and one manned flight will be undertaken.</p> <p>► ISRO has developed launch vehicle GSLV MK-III, which has the necessary payload capability to launch a three-member crew module in low earth orbit.</p>
	# Nuclear	<p>► Kaiga nuclear power plant in western Karnataka has created a world record for the longest uninterrupted operation of 941 days. It demonstrates that the nation's capability in nuclear power generation technology of PHWR had fully matured.</p>
	# Biotech # DNA Profiling	<p>► DNA profiling may be a contentious issue among humans, but for Kerala's captive elephants, it's a done deal. In a first for India, every one of Kerala's captive elephants now has a unique DNA-based genetic ID. Move could help solve wildlife crime cases involving poaching and illegal trade.</p>

Ethics

	# Courage # Civic Values	<p>► Seven-year-old Hanifa Zaara went to the police after her father broke his promise to build her a toilet. She lives with her parents in Amburin Tamil Nadu.</p>
	# Courage # Compassion	<p>► Nobel laureates Denis Mukwege and Nadia Murad called on the world to protect victims of wartime sexual violence in their Peace Prize acceptance speeches. "If there is a war to be waged, it is the war against the indifference which is eating away at our societies," Dr. Mukwege said.</p>
	# Environmental Ethics	<p>► Sentientism is the philosophy that all sentient beings, which can experience different kinds of emotions that are similar to the emotions experienced by human beings, possess natural rights that need to be respected by people.</p>
	# Work Culture	<p>► A happy employee is often an engaged employee — dictated by this wisdom, a few organizations are allowing their employees to "customise" their holiday calendar. Besides state-declared holidays, they can choose to mark "their holidays" drawing from a special reserve. For e.g. Sasken Technologies.</p>
	# Corporate Corruption	<p>► Former Nissan chief Carlos Ghosn faces 10 years in prison if convicted for under-reporting his income.</p>

Data

# Agriculture Exports	<ul style="list-style-type: none"> ▶ Cabinet approved the Agriculture Export Policy, aimed at increasing India's exports to \$60 billion by 2022 from the current \$37 billion. Other objectives: ▶ Create clusters that can focus on particular crops ▶ Diversify export basket and destinations ▶ Boost high-value and value-added exports ▶ Promote "novel, indigenous, organic, ethnic, traditional and non-traditional" products ▶ Provide an institutional mechanism for market access, tackling barriers, and dealing with sanitary and phytosanitary issues
# Poverty & Malnutrition	<ul style="list-style-type: none"> ▶ India is home to highest no. of stunted (low ht for age) and wasted (low wt for height) children in the world, according to the Global Nutrition Report 2018. Districts in central and northern India have highest no. of stunted children. ▶ Comparison with Multidimensional Poverty Index: many of the poorest districts also have the highest prevalence of stunting. Higher the MPI, worse off the district.
# International Energy Organization	<ul style="list-style-type: none"> ▶ Among OPEC nations, Venezuela has the most oil reserves but Saudi Arabia produces the most crude per day. ▶ Qatar which withdrew from OPEC, is a major natural gas producer and exporter, but ranks relatively low in crude production. Its exit may not have much of an economic impact.
# Growth & Jobs	<ul style="list-style-type: none"> ▶ Annual growth of 9% by 2022-23 is essential for generating sufficient jobs. - NITI Aayog Strategy for New India @75' document ▶ India's tax-GDP ratio of around 17% is half the average of OECD countries (35%) and is low even when compared to other emerging economies like Brazil (34%), South Africa (27%) and China (22%)."
# Economy: China	<ul style="list-style-type: none"> ▶ As China celebrates the 40th anniversary of "reform and opening up", it holds the world's largest foreign reserves (\$3.05 trillion in October), and boasts the second-largest economy (with a GDP of \$12.2 trillion in 2017). Its share of the world's economy has ballooned from 1.8% in 1978 to 18.2% in 2017.
# CO2 emissions - India & World	<ul style="list-style-type: none"> ▶ Global CO2 emissions have risen steadily over the decades. China's emissions accounted for 27% of the global total. India was 3rd highest contributor (7%). ▶ India = 2.5, China = 5.3, US = 9.8 billion tonnes ▶ Although India is rapidly going in for solar and wind power, coal usage continues to grow strongly. Coal is responsible for 65% of India's CO2 emissions.
# Impact of Air pollution on Health	<ul style="list-style-type: none"> ▶ India, with 18% of the world's population, has a disproportionately high 26% of the global premature deaths and disease burden due to air pollution. ▶ Moreover, one in eight deaths in India was attributable to air pollution in 2017, making it a leading risk factor for death. (ICMR-PHFI-Lancet)
# Digital Age # Social Media	<ul style="list-style-type: none"> ▶ 49 billion people on average log onto Facebook daily; every second, on average, around 6,000 tweets are tweeted on Twitter; and since its inception, over 40 billion photographs have been posted on Instagram.
# Promoting Innovation # Protecting IP Rights	<ul style="list-style-type: none"> ▶ Globally, 1.4 million patents were granted in 2017. China led the world with 0.4 million patents followed by U.S.. India received ~12k - which is 50% increase over previous year according to UN's WIPO.

Quotes

Contentment / Peace / Satisfaction Happiness

- Happiness is when what you think, what you say and what you do are in harmony. – Mahatma Gandhi
- If you want others to be happy practice compassion. If you want yourself to be happy, practice compassion. – Dalai Lama
- If you want to be happy, be. – Leo Tolstoy

Temperance

- "I count him braver who overcomes his desire than who overcomes his enemies" – Aristotle
- "The world has enough for everyone's need, but not enough for everyone's greed." – Gandhi
- "Nearly all men can stand adversity, but if you want to test a man's character, give him power." – Abraham Lincoln

Tolerance

- Rig-Veda "Ekam Satyam ViprahBahudaVadanti": Truth is One, Educated call it by different Names
- Voltaire "I disapprove of what you say, but I will defend to the death your right to say it."

Democracy

- Democracy is a device that ensures we shall be governed no better than we deserve. – GB Shaw
- My notion of democracy is that under it the weakest should have the same opportunity as the strongest. – Gandhi
- Democracy means tolerance, tolerance not merely of those who agree with us, but those who do not agree with us. – Nehru
- Democracy is the worst form of government, except for all the others." - Winston S. Churchill
- Democracy is not just the right to be equal but the equal right to be different. – Shimon Peres
- No democracy can hope to be self-guaranteeing; but the longer it endures, the more it is able to develop resources to endure still further in time. – Sunil Khilnani
- All the ills of democracy can be cured by more democracy. – Amartya Sen;
- "The ballot is stronger than the bullet." -Abraham Lincoln
- "Democracy in India is only a top dressing on an Indian soil, which is essentially undemocratic." – Dr. B RAmbedkar

1) With reference to Security of India, consider the following statements:

1. NATGRID is a central agency formed after Kargil War.
 2. Its data can be accessed by Central Investigative Agencies presently.
- 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

2) Which of the following impacts can be related to Heat Waves?

1. Agriculture suffers
2. Health Deterioration
3. Air Transport difficulties
4. Water Consumption Increases
5. Serious Health Risks

Select the correct answer using the code given below:

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

3) With reference to Central Armed Police Forces (CAPFs), consider the following statements:

1. These forces are just subsidiary of Indian Defence Forces.
2. They function only under Ministry of Home Affairs.
3. India-Myanmar border is guarded by Assam Rifles.

Which of the statements given above is/are correct?

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

4) Consider the following statements with reference to Global Wage Report 2018/19:

1. This report is published by International Labour Organisation (ILO).
 2. The report recorded that India has the highest average real wage growth in South Asia in the last decade.
- 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

5) With reference to GSAT 11 recently launched, consider the following statements:

1. It is a heaviest Indian communications satellite launched by ISRO.
 2. GSAT-11 will boost the broadband connectivity to rural and inaccessible Gram Panchayats in the country.
- 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

6) Consider the following statements with reference to Sikhism religion:

1. Sikhism is the world's fifth-largest religion.
 2. There are five takhts in this religion.
- Which of the following statements is/are correct?

- (a) 1 Only
- (b) 2 Only

- (c) Both 1 and 2
- (d) Neither 1 nor 2

7) With reference to 'Permafrosts', consider the following statements:

1. It is found only in higher latitudes near Arctic and Antarctic region.
2. Melting of Permafrost is being observed due to Global Warming.

Which of the following statements is/are correct?

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

8) Recently a tropical cyclone was named as rarest of rare cyclone by RIMES(Regional Integrated Multi-Hazard Early Warning System):

- (a) Cyclone Gaja.
- (b) Cyclone Storm Daye
- (c) Cyclone Phethai
- (d) Cyclone Titli.

9) With reference to Commonwealth of Nations, consider the following statements:

1. It is an intergovernmental organisation of 53 member states that are all former territories of the British Empire.
2. Member states have legal obligations to one another.

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

10) Consider the following statements with reference to G20 summit held recently:

1. It took place at Buenos Aires, first time ever in South America.
2. G20 summit 2022 proposed will be held in India.
3. G20 Argentina has put forth three agenda priorities for the G20 dialogue in 2018: the future of work, infrastructure for development and a sustainable food future.

Which of the statements given above is/are incorrect?

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

11) With reference to Nasa's InSight Mission, Consider the following statements:

1. The mission is a robotic lander designed to study the deep interior of the planet Mars.
2. It is a first mission which landed on Mars with seismometer.
3. It will bring back soil sediments from Mars.

Which of the following statements is/are correct?

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

12) With reference to Human Microbiome, consider the following statements:

1. The microbiome is the genetic material of all the microbes - bacteria, fungi, protozoa and viruses.
2. Composition of microbiome in human body is same across the world.

Which of the following statements is/are correct?

- (a) 1 Only
- (b) 2 Only

- (c) Both 1 and 2
- (d) Neither 1 nor 2

13) Consider the following statements with reference to Ultra Mega Power Projects(UMPP):

1. These Power projects are Solar based large power plants.
2. UMPP is based on supercritical technology.

Which of the following statements is/are correct?

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

14) Regarding CRISPR-Cas9 Technology, which of the following statements are correct?

1. This genome editing technology can be used only for Mutation in Human body.
2. Cas9 is the enzyme used in this technique.

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

15) Consider the following statements with reference to Ocean Fertilization:

1. It is a type of climate engineering based on the purposeful introduction of nutrients to the upper ocean and to remove carbon dioxide from the atmosphere.
2. This can help in combating situation, like Algal Bloom.

Which of the following statements is/are correct?

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

16) With reference to 'Hyper-Spectral Imaging Satellite (HysIS)' recently seen in news, consider the following statements:

1. HysIS is an earth observation satellite placed at sun synchronous orbit.
2. The primary goal of HysIS is to study the earth's surface in both the visible, near infrared and shortwave infrared regions of the electromagnetic spectrum.

Which of the following statements is/are correct?

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

17) What is 'Bio-Plastics', sometimes seen in the news?

- (a) A type of plastics which are easily degradable and obtained only from plants.
- (b) One type of plastic material which is green in color and is made from deep sea organisms.
- (c) Are plastics derived from renewable biomass sources and also from used plastic bottle.
- (d) None of the above.

18) With reference to Conference of Parties (COP-24) of UNFCCC recently held in Poland, Consider following statements:

1. It came out with a rulebook to Paris Agreement of 2015.
2. A new carbon credit mechanism got finalized fully.

Which of the following statements is/are correct?

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

19) Consider the following statements with reference to First Past the Post System followed in India:

1. Candidate with only majority of the total votes polled wins the election.
2. This system is followed in election of all MPs of Lok Sabha and Rajya Sabha.

Which of the following statements is/are correct?

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

20) Consider the following statements with reference to National Register of Citizens (NRC):

1. Assam is the first Indian state where NRC is being updated after 1951.
2. NRC is being updated as per the provisions of the Citizenship rules, 2003.

Which of the following statements is/are correct?

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

21) Which of the following statements are correct regarding the Organization of the Petroleum Exporting Countries (OPEC):

1. Recently Qatar has decided to withdraw its membership from OPEC.
2. Among the OPEC Countries, Saudi Arabia is the largest crude oil producer on per day basis.
3. Venezuela has highest Oil the highest Oil reserves among OPEC Countries.

Which of the above statements is/are correct?

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

22) Consider the following statements with reference to 'Kimberley Process Certification Scheme':

1. It is an international certification scheme that regulates trade in rough diamonds and aims to prevent the flow of conflict diamonds.
2. India is a founding member of Kimberley Process Certification Scheme.

Which of the following statements is/are correct?

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

23) With reference to Pradhan Mantri Bhartiya Janaushadhi Pariyojana, consider the following statements:

1. It is a campaign launched by Ministry of Health and family Welfare.
2. It is to bring down the healthcare budget of every citizen of India through providing Quality generic Medicines at Affordable Prices.

Which of the following statements is/are correct?

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

24) With reference to FAME-India Scheme Consider the following statements:

1. The Objective of this scheme is to increase brand value of India across the world.
2. This scheme is being implemented by Ministry of Commerce and Industry.

Which of the following statements is/are correct?

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

25) Consider the following statements with reference to International Maritime Organisation (IMO):

1. International Maritime Organization (IMO) is a specialised agency of the United Nations.
2. India has been one of the earliest members of the IMO, joined it as a member-state in the year 1959.

Which of the following statements is/are correct?

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

26) Consider the following statements with reference to Ethanol Blending Petrol Programme:

1. Ethanol Blended Petrol (EBP) programme was launched in 2003.
2. Government is considering to increase ethanol blending in petrol from originally 5% to 10% by 2022.

Which of the following statements is/are correct?

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

27) With reference Oxytocin Hormone, consider the following statements:

1. In human body it is released by Pituitary gland positioned in Hypothalamus region.
2. Oxytocin is released directly into the bloodstream as a hormone.

Which of the following statements is/are correct?

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

28) Consider the following statements with reference to planet Saturn of our Solar System:

1. Density of Saturn is lowest in the Solar System.
2. Saturn's moon Titan is the second largest moon in the Solar System, behind Jupiter's moon Ganymede.

Which of the statements given above is/are incorrect?

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

29) Consider the following statements with reference to Trans Regional Maritime Network:

- 1) India has signed an accession to this pact to increase its military influence in the Indian Ocean.
- 2) By joining this Network India can easily access to the information on ships passing through the Indian Ocean Region.

Which of the following statements is/are correct?

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

30) Consider the following statements with reference to 'Global Nutrition Report 2018':

1. It is an annual publication by Food and Agricultural Organisation (FAO).
2. India has the highest percentage of stunted children in the world.

Which of the following statements is/are correct?

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

31) Consider the following statements with reference to India and Vietnam Relations:

1. India and Vietnam established official diplomatic relations in 1972.
2. Both Countries are members of East Asia Summit, ASEAN and WTO.

Which of the following statements is/are correct?

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

32) Consider the following statements with reference to GSAT 7A, recently launched by ISRO:

1. This communication satellite is launched by GSLV MkIII.
2. For the first time military satellite is launched by India.

Which of the statements given above is/are correct?

- (e) 1 only
- (f) 2 only
- (g) Both 1 and 2
- (h) Neither 1 nor 2

33) Consider the following statements with reference to National Initiative on Climate Resilient Agriculture (NICRA):

1. It is an initiative under Ministry of Environment, Forest and Climate Change.
2. The project aims to enhance resilience of Indian agriculture to climate change and climate vulnerability through strategic research and technology demonstration.

Which of the following statements is/are correct?

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

34) Consider the following statements with reference to 'Public Credit Registry':

1. It will replace Central Repository of Information on Large Credits of Reserve Bank of India.
2. It is a mission mode project under Ministry of Finance.

Which of the following statements is/are correct?

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

35) Consider the following statements with reference to Rat Hole Mining:

1. This method of mining is adopted due to inadequate thickness of coal seam.
2. It has a limited advantage of no environmental pollution.

Which of the following statements is/are correct?

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

36) With reference to Global Gender Gap Index, consider the following statements:

1. It is published by United Nations Development Group (UNDP).
2. In this year's Index India is ranked 108th.
3. The Global Gender Gap Index is measured across four pillars - Economic participation, Educational attainment, Political empowerment and Health and survival.

Which of the following statements is/are correct?

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

37) Consider the following statements with reference to the United Nation Global Counter-Terrorism Coordination Compact:

1. It is a new framework agreement under the aegis of UN to combat terrorism and to ensure Human rights of individuals.
2. The United Nations Office of Counter-Terrorism, Coordination Committee will oversee the implementation of this Compact.

Which of the following statements is/are correct?

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

- (a) United Nations Environmental Programme(UNEP)
- (b) Intergovernmental Panel on Climate Change(IPCC)
- (c) World Meteorological Organization(WMO)
- (d) United Nations Framework Convention on Climate Change(UNFCCC)

39) Consider following statements with reference to Consumer Protection Bill 2018, recently passed in LokSabha:

1. A new regulatory body, Central Consumer Protection Authority (CCPA) will be formed.
2. Claim for product liability can be made against manufacturer, service provider, and seller is an important provision in the bill.
3. This bill defines the e-commerce and direct selling.

Which of the following statements is/are correct?

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

40) Consider the following statements with reference to Bogibeel Bridge:

1. It is the longest road bridge in India.
2. The Bogibeel Bridge traces its origins to the Assam Accord of 1985.

Which of the following statements is/are correct?

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

41) With reference to Surrogacy Bill 2016, recently passed in LokSabha, Consider the following statements:

1. It prohibits altruistic surrogacy as it can lead to commercial surrogacy.
2. It prohibits Transgender and Single Parent from having a surrogate child.

Which of the following statements is/are correct?

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

36) With reference to Global Gender Gap Index, consider the following statements:

1. It is published by United Nations Development Group (UNDP).
2. In this year's Index India is ranked 108th.
3. The Global Gender Gap Index is measured across four pillars - Economic participation, Educational attainment, Political empowerment and Health and survival.

Which of the following statements is/are correct?

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

37) Consider the following statements with reference to the United Nation Global Counter-Terrorism Coordination Compact:

1. It is a new framework agreement under the aegis of UN to combat terrorism and to ensure Human rights of individuals.
2. The United Nations Office of Counter-Terrorism, Coordination Committee will oversee the implementation of this Compact.

Which of the following statements is/are correct?

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

38) 'Katowice Climate Change Rule Book', is related to:

- (a) United Nations Environmental Programme(UNEP)
- (b) Intergovernmental Panel on Climate Change(IPCC)
- (c) World Meteorological Organization(WMO)
- (d) United Nations Framework Convention on Climate Change(UNFCCC)

39) Consider following statements with reference to Consumer Protection Bill 2018, recently passed in Lok Sabha:

1. A new regulatory body, Central Consumer Protection Authority (CCPA) will be formed.
2. Claim for product liability can be made against manufacturer, service provider, and seller is an important provision in the bill.
3. This bill defines the e-commerce and direct selling.

Which of the following statements is/are correct?

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

40) Consider the following statements with reference to Bogibeel Bridge:

1. It is the longest road bridge in India.
2. The Bogibeel Bridge traces its origins to the Assam Accord of 1985.

Which of the following statements is/are correct?

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

41) With reference to Surrogacy Bill 2016, recently passed in Lok Sabha, Consider the following statements:

1. It prohibits altruistic surrogacy as it can lead to commercial surrogacy.
2. It prohibits Transgender and Single Parent from having a surrogate child.

Which of the following statements is/are correct?

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

42) Which Indian state has brought 'Sextortion Law', recently seen in the news:

- (a) Nagaland.
- (b) Arunachal Pradesh.
- (c) Jammu and Kashmir.
- (d) West Bengal.

43) Consider the following statements with reference to World Bank Report on Remittances 2018:

1. India is the second highest remittances receiver after china.
 2. Reducing remittance costs to 3 percent by 2030 is a global target under Sustainable Development Goal (SDG).
- Which of the following statements is/are correct?

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

44) With reference to Climate change and Global Warming, Consider the following statements:

1. There is a phenomenon of Sea Turtle Feminization being observed due to increase in Ocean water temperature.
2. Ocean Acidification is also the result of increase in global average temperature.

Which of the following statements is/are correct?

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

45) Which of the following is correct about recently in news, Project Dragon Fly:

- (a) It is a project started by China to locate artificial Sun in the sky.
- (b) It is a counter insurgency project of China through the use of Drones.
- (c) It is an internet search engine prototype created by Google for China.
- (d) None of the above

46) Consider the following statements with reference to ISRO's Small satellite Launch Vehicle (SSLV) Design:

1. It will replace Polar Satellite Launch Vehicle (PSLV) for all domestic satellite launches.
2. The SSLV will have three solid motor stages.

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

Recently the Union Cabinet has approved National project status to Shahpurkandi dam, on which River and State is it situated at:

- (a) Ravi and Himachal Pradesh.
- (b) Chenab and Punjab.
- (c) Ravi and Punjab.
- (d) Beas and Himachal Pradesh.

48) Consider the following statements with reference to 'Tsunami(s)':

- (a) A tsunami is a series of ocean tides caused by an underwater earthquake or volcanic eruption.
- (b) An under-water Landslide can cause Tsunami.

Which of the following statements is/are correct?

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

49) Consider the following statements with reference to recently launched National Mission on Interdisciplinary Cyber-Physical Systems:

1. It will be implemented by Ministry of Earth sciences (MoES).
2. The Mission will feed the Central Ministries and State Governments and also the Industry to effectively use the CPS (Cyber Physical Systems) technologies.

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

50) Consider the following Volcanoes and arrange them from west to east with reference to International date Line:

1. Volcano Mount Etna
2. Volcano Anak Krakatau
3. Volcano Copataxi
4. Volcano Aconcagua
5. Volcano Mauna Loa
6. Volcano Stromboli

Select the correct order from the following options given below:

- (a) 3-4-5-1-6-2
- (b) 4-5-3-6-2-1
- (c) 5-3-4-6-1-2
- (d) 2-5-4-6-3-1

MAINS PRACTICE QUESTIONS

Ques.1 Former Reserve Bank of India governor Raghuram Rajan stressed on the need to do away with farm loan waivers. Discuss the efficacy of farm loan waivers as a policy tool in dealing with the problems faced by an Indian farmer.

Ques.2 The Surrogacy (Regulation) Bill, 2016 was recently passed by the Lok Sabha. What is surrogacy? Discuss the key issues around surrogacy in India. Do you think the bill addresses the concerns of surrogate mothers adequately?

Ques 3 What is Terrorism? How can the newly unveiled Global Counter-Terrorism Coordination Compact by United Nations help in tackling the problem of cross-border Terrorism in India?

Ques 4 Supreme Court recently approved India's first Witness Protection Scheme. How will it strengthen the criminal justice system in our country? Discuss some of the other reforms needed.

Ques 5 India's heaviest communication satellite GSAT-11 was recently launched from French Guiana. How can GSAT 11 help achieve the objective of inclusive growth, both regionally and socially?

[Click here](#) to submit your answers.

OR



(Scan QR Code to submit your answers)

SOLUTIONS TO THE PRELIMS CAPSULE:

Solution: 1 (b)

Solution: 2 (d)

Solution: 3 (b)

Solution: 4 (c)

Solution: 5 (b)

Solution: 6 (c)

Solution: 7 (b)

Solution: 8 (d)

Solution: 9 (d)

Solution: 10 (d)

Solution: 11 (c)

Solution: 12 (a)

Solution: 13 (b)

Solution: 14 (a)

Solution: 15 (a)

Solution: 16 (c)

Solution: 17 (c)

Solution: 18 (b)

Solution: 19 (d)

Solution: 20 (c)

Solution: 21 (d)

Solution: 22 (c)

Solution: 23 (b)

Solution: 24 (d)

Solution: 25 (c)

Solution: 26 (c)

Solution: 27 (c)

Solution: 28 (c)

Solution: 29 (b)

Solution: 30 (b)

Solution: 31 (a)

Solution: 32 (d)

Solution: 33 (b)

Solution: 34 (d)

Solution: 35 (a)

Solution: 36 (a)

Solution: 37 (c)

Solution: 38 (d)

Solution: 39 (d)

Solution: 40 (b)

Solution: 41 (b)

Solution: 42 (c)

Solution: 43 (b)

Solution: 44 (c)

Solution: 45 (c)

Solution: 46 (b)

Solution: 47 (c)

Solution: 48 (b)

Solution: 49 (b)

Solution: 50 (c)

Note : For detailed solution please click [here](#)



(Scan QR Code for detailed solution)

Thank You

Please share your feedback/Suggestions
upsciq@gmail.com