

20 June 2021: UPSC Exam Comprehensive News Analysis

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A. GS 1 Related

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B. GS 2 Related

Category: INTERNATIONAL RELATIONS

1. A Cold War relic that's seeking a new purpose

Context:

- The 2021 Brussels summit of the North Atlantic Treaty Organization (NATO).
 - A NATO summit is the gathering of the leaders of NATO's 30 member countries.

Background:

- The North Atlantic Treaty Organization is an intergovernmental political and military alliance between 30 European and North American countries.
 - NATO happens to be the world's largest military alliance.
- It is based on the Washington Treaty or North Atlantic Treaty which was signed in 1949 by 12 founding members.
 - NATO's essential and enduring purpose is to safeguard the freedom and security of all its members by political and military means.
 - **Collective defence** is the major aspect of the Treaty and is enshrined in Article 5, whereby the member states agree to mutual defence in response to an attack by any external party.
 - The collective defence principle states that "an attack against one ally is considered as an attack against all allies".
- The Soviet Union's imposition of the Berlin blockade of 1948-49 and the support to the coup in Czechoslovakia in 1948 galvanized the war-ravaged European nations to come together under an American security blanket as a counter to the Soviet Union's communist expansion in the region. The formation of NATO, and its Soviet counterpart, the Warsaw Pact, in 1955, marked the beginning of the Cold War era.
- Originally formed by 12 Allied powers to counter the massive Soviet armies stationed in Eastern and Central Europe after the Second World War, the membership and mandate of the organization has increased over the years. Starting with 12 founding countries, NATO currently has 30 members.
- NATO's Headquarters is located in Brussels, Belgium.

Details:

- Major topics under discussion included NATO's role in the changing geostrategic environment and concrete measures to adapt the Alliance, as part of the NATO 2030 agenda.
- At the NATO Summit, the NATO Leaders took decisions on a wide range of topics to address the
 current and future security challenges. This included Russia's pattern of aggressive behaviour,
 terrorism, cyberattacks and disruptive technologies, the rise of China, and the security
 implications of climate change.

Concerns:



Source of concern for US and Russia bilateral relations and its implications:

- Tensions with Russia have been an inevitable outcome of NATO's bid to expand eastward into what Russia considers its sphere of influence.
 - NATO's membership today stands at 30, having added 14 members between 1999 and 2020.
- The move to bring countries such as Ukraine, Georgia and Moldova under NATO has led to a **confrontation with Russia**.
- Russia in a move which it claims sought to protect its interests, annexed Crimea and has stationed
 its troops in Georgia and Moldova. This has increased concerns over escalation of tensions in the
 region further.

Potential source of conflict between the US and China:

- In the latest communiqué issued following the recent summit, NATO for the first time, explicitly described China as a security risk. The communiqué notes China's stated ambitions and assertive behaviour as presenting systemic challenges to the rules-based international order and to areas relevant to NATO alliance's security.
- The U.S. is trying to push NATO to take a stronger position towards China in line with the
 U.S.'s growing conviction of China being a threat to its global supremacy and need for it to be
 contained.
- China has reacted strongly against this observation and has warned against artificially creating confrontations.
- Academicians have pointed that unlike the Soviet Union, China offers no alternative vision of society that should make Western capitalism insecure and view the U.S. led policy as nothing but regressive policy based on American exceptionalism. This could only lead to increased confrontation.
- The paradigm shift of NATO's mandate from collective defence, which implied a known adversary, to collective security, which is open-ended, and might require action against any number of threats, including unknown ones and non-state actors does not augur well for global peace and security and could render the NATO liable to misuse for vested interests.

Differences between the member nations:

- The continued persistence of NATO could be the fact that it has been a mutually beneficial arrangement for the members. The NATO alliance offers security to European member countries, while for the U.S., it has been an vehicle for power-projection around the world
 - The European members have been able to enjoy absolute security at a cheap price in exchange for a marginal loss in autonomy.
 - For the U.S., NATO has been a vehicle for power-projection around the world including in places such as Iraq, Afghanistan and Libya. The US views NATO as a tool to ensure the primacy of American interests across the globe. It has been able to get its NATO allies to be part of the US's wars in Afghanistan, Iraq by getting them to send troops and invest resources.



- Recent years have witnessed some differences between the member nations.
 - The sharing of the burden of financial resources between the member nations has been an area of friction between the U.S. and the European states as the US bears nearly 70% of NATO's bills. Some members do not send troops to conflict outside Europe and most contribute less than their share of financial resources
 - There has been growing differences between the increasingly assertive European member nations and the U.S. with European nations being wary of being dragged into confrontations that may necessarily not serve Europe's interests.
 - For example, with respect to the recent NATO communiqué, both France and Germany have sought to distance themselves from NATO's official position on China. NATO's European member states have sought to underplay the security threat posed by China in the North Atlantic region and view China as only an economic rival and adversary.
- 2. Doval, Pak. NSA to attend SCO meet in Dushanbe next week

Context:

• The scheduled Shanghai Cooperation Organisation (SCO) meeting, of the "Secretaries of the Security Council" in Dushanbe, Tajikistan.

Details:

- The participation of the National Security Advisers of India and Pakistan is expected in the meeting.
 The SCO meeting comes in the light of India and Pakistan taking a series of decisions to defuse tensions between the two neighbours aided by back-channel dialogue.
 - Example- The announcement of a ceasefire agreement at the Line of Control.
- The presence of senior security officials from India and China is also of significance, given the continuing standoff at the Line of Actual Control in Ladakh between India and China.
- The meeting will set the course for the annual "Regional Anti-Terror Structure" mechanism joint exercises by SCO member troops, to be held in Pakistan in 2021.
- The Regional Anti-Terrorist Structure (RATS), headquartered in Tashkent, Uzbekistan, is a permanent organ of the SCO which serves to promote cooperation of member states against the three evils of terrorism, separatism and extremism

For more information on SCO:

The Shanghai Cooperation Organisation (SCO)

C. GS 3 Related

Category: ENVIRONMENT AND ECOLOGY

1. Are your staple rice and wheat losing their nutrients?

Context:



• A recent study notes the depleting trends of essential nutrients in rice and wheat cultivated in India.

Details:

- The study notes that the currently produced rice and wheat grains as not having the same density of essential nutrients as those cultivated 50 years ago.
- There has been a **depleting trend in grain density of zinc and iron in rice and wheat** cultivated in India over the years.

Possible reasons:

Dilution effect:

• 'Dilution effect' is caused by **decreased nutrient concentration in response to higher grain yield.** This is due to the fact that the rate of yield increase is not compensated by the rate of nutrient take-up by the plants.

Decreased quantity of nutrients in soil:

 The increasing use of monoculture cropping patterns and intensive agricultural practices could have resulted in a scenario where the soils supporting plants could be low in plant-available nutrients.

Concerns:

- The lack of essential micronutrients like Zinc and iron in Rice and Wheat could adversely affect the nutritional security of billions of people globally.
 - Rice and wheat constitute the staple food for over half of the global population.
 - Counties like India which continue to battle micronutrient deficiency have diets composed
 mainly of rice, wheat, corn, and barley. The growing of newer cultivars of rice and
 wheat cannot be a sustainable option to alleviate zinc and iron malnutrition in Indian
 population.

Recommendations:

Biofortification:

- Apart from the initiatives such as providing micro nutrient supplementation pills to school children, there is also the need to concentrate options like biofortification.
 - Fortification is the practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in a food, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health.
 - Biofortification is the process by which the nutritional quality of food crops is improved through agronomic practices, conventional plant breeding, or modern biotechnology. It involves the breeding of food crops that are rich in micronutrients.



- Biofortification differs from conventional fortification in that biofortification aims to increase nutrient levels in crops during plant growth rather than through manual means during processing of the crops.
- Examples of biofortification projects include:
 - iron-biofortification of rice, beans, sweet potato, cassava and legumes;
 - zinc-biofortification of wheat, rice, beans, sweet potato and maize;
 - provitamin A carotenoid-biofortification of sweet potato, maize and cassava; and
 - amino acid and protein-biofortification of sourghum and cassava.
- The future breeding programmes of new cultivars should **focus on improving the grain ionome** (**nutritional make-up**) as a remedy to the observed trend of depleting micronutrient levels.

Sustainable agricultural practices:

• Given the ill effects of mono culture practices and intensive agricultural practices backed by intensive fertilizer usage, there is the need for moving towards more sustainable agricultural practices like **organic farming**, **multi cropping and permanent agriculture** which accord the necessary attention towards the **overall health of the soil**.

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Category: SCIENCE AND TECHNOLOGY

1. The debate around gain-of-function research

Context:

- With the re-emergence of the lab-leak origin theory for the SARS-CoV-2, questions are being raised on gain-of-function research.
 - The Wuhan Institute of Virology was said to have conducted gain-of-function research on coronaviruses.

Gain-of-function research:

- Gain of function research is medical research that **deliberately alters an organism in a way that** increases its pathogenesis, transmissibility, or host range.
- Gain-of-function research involves altering a gene, or introducing a mutation in a pathogen to study its transmissibility, virulence and immunogenicity.
 - When mutations occur, they alter the structure of the virus resulting in altered functions.

Significance:

 The gain of function research helps better understand the functioning of the virus and helps identify possible targets for development of vaccines and therapeutics against the virus.



- The study gains all the more significance given the increasing incidence of 'escape mutants', i.e.,
 drug-resistant strains. This necessitates the continual need to develop new antiviral drugs and
 additional options, such as immunotherapy.
- The gain of function research provides valuable insights into better predicting of emerging infectious
 diseases and ways to control the disease better in future. Thus it involves a more proactive
 approach to tackling future pandemics and helps keep science and governments battle-ready for
 future pandemics.

Concerns:

- Gain-of-function research involves **genetic engineering of virus**. The **long term impact of such human intervention** remains uncertain.
- Gain-of-function research involves manipulations that make certain pathogenic microbes more
 deadly or more transmissible. Thus some form of gain of function research carries inherent
 biosafety and biosecurity risks, and are thus also referred to as dual use research of concern
 (DURC).
 - Dual Use Research of Concern (DURC) is life sciences research that, based on current
 understanding, can be reasonably anticipated to provide knowledge, information, products,
 or technologies that could be directly misapplied to pose a significant threat with broad
 potential consequences to public health and safety.
- In case of gain-of-function research, there is the potential to cause harm through accidental or deliberate escape of the altered pathogens from labs.

For more information on biosecurity and associated issues refer to:

UPSC Comprehensive News Analysis 14th June 2021

• Such research also raises **ethical concerns**because of the potential risk posed by virulent pathogen to people.

Recommendations:

- Further research in this domain should be backed by **an objective risk-benefit analysis**. The studies should gauge whether the benefits of conducting such research outweigh the risk of pathogens escaping from labs.
- There should be responsible use of life sciences research, focusing on mitigation and prevention of biorisks.
- All possible steps need to be taken to ensure the safety of the procedure. The WHO must develop
 a Global Guidance Framework for member states to follow in this direction. This should provide
 operational guidance on the containment of biohazards and levels of biosafety that all institutions
 involved in research, development and handling of these microorganisms must comply with.
- To mitigate the associated risks while allowing the benefits of such research, various governments
 have mandated that DURC experiments be regulated under additional oversight by designated
 institutions and government agencies. This approach needs to be adopted in every country.



• There is the need to ensure **greater transparency** about such research given that unnecessary secrecy over such research makes it liable for misuse. There should be broader community engagement/consultation, and more transparent GOFR decision- and policy-making.

Additional information:

 In India, all activities related to genetically engineered organisms or cells and hazardous microorganisms and products are regulated as per the "Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/Genetically Engineered Organisms or Cells Rules, 1989".

Category: HEALTH

1. 'Delta plus' and an emerging public health threat

Context:

Concerns around the world and in India about 'Delta plus' variant of the SARS- CoV-2

Background:

Delta plus variant:

- Formally known as 1 or B.1.617.2.1, the Delta plus is an emerging form of the Delta variant (B.1.617.2).
- It has an **additional mutation called K417N**, which has previously been identified in the Beta variant and the Gamma variant.
 - This mutation in the virus's spike protein facilitates entry into human host cells.
 - The spike protein, an important component of the coronavirus, stimulates the virus's entrance into human cells and causes infection.
- It is **currently a "variant of interest"**, and hasn't been classified as a "variant of concern" yet in the World Health Organization's list.
- Research is on to understand its transmissibility, virulence.

Concerns:

High number of mutations:

• The **Delta variant has a number of mutations** that have allowed it to **dominate in several countries**, thus posing new challenges to the management of the pandemic.

High infectiveness:

- The K417N mutation found in the Beta variant and the Gamma variant has been characterised as being highly infectious and thus there are the concerns of a new wave associated with this variant.
 - In the light of a recent spike in positivity rate in some districts of Maharashtra and the
 increase in the delta plus variants recorded from these districts experts have warned that
 Delta plus variant might be the reason behind a third wave of the COVID-19 pandemic.



Impact of the vaccines on the new variant:

- Given the fact that the delta plus variant has significant differences compared to the strain that has been used by pharma companies to design vaccines, there are doubts being expressed on whether the existing vaccines would be effective against the delta plus variant.
- Studies to determine the potency of Covishield and Covaxin against the Delta variant have indicated that while antibodies continued to be produced against the variant, they were **fewer antibodies produced** than those produced against the strain used by companies to prepare their vaccines.

Render monoclonal antibody treatment ineffective:

- A major concern with the AY.1 is the presence of the K417N mutation. Previous studies have associated the mutation with resistance to the newly developed monoclonal antibody treatment drug, Casirivimab and Imdevimab.
- The mutation presumably allows the new variant to "escape" antibodies in the monoclonal antibody treatment regimes.

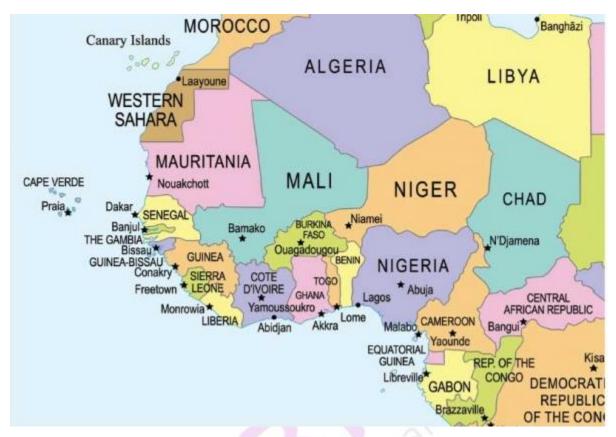
F. Prelims Facts

1. Ebola outbreak in Guinea is over: WHO

Ebola:

- Ebola virus disease (EVD) is a rare but severe, often fatal illness in humans.
- It affects humans and nonhuman primates, such as monkeys, gorillas and chimpanzees.
- It is thought that fruit bats of the Pteropodidae family are natural Ebola virus hosts.
- Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals such as fruit bats, chimpanzees, gorillas, monkeys, forest antelope or porcupines found ill or dead or in the rainforest. Ebola then spreads through human-to-human transmission humans through contact with bodily fluids such as blood.
- The 2014–2016 outbreak in West Africa was the largest Ebola outbreak since the virus was first discovered in 1976. The outbreak started in Guinea and then moved across land borders to Sierra Leone and Liberia.





- The average EVD case fatality rate is around 50%.
- Vaccines to protect against Ebola have been developed and have been used to help control the spread of Ebola outbreaks.

Context:

• The World Health Organization officially announced the end of Guinea's second Ebola outbreak.

2. NGT closes proceedings against Mekedatu dam project

Mekedatu dam project:

- The Mekedatu dam project is envisaged on the Cauvery river.
 - Mekedatu is a deep gorge situated at the confluence of the rivers Cauvery and its tributary Arkavathi.
- The project aims to build a reservoir across Cauvery at Mekedatu which will help store and supply
 water for drinking purposes for the Bengaluru city while also proposing to develop around 400
 megawatts (MW) of hydroelectric power.

Context:

- The National Green Tribunal (NGT) has closed proceedings against the Mekedatu dam project based on allegations of violations of environmental norms in the construction of the dam.
- 3. HC directs NHRC to examine complaints of Bengal violence



NHRC:

- The National Human Rights Commission (NHRC) of India is a statutory public body under the Protection of Human Rights Act, 1993.
- The Protection of Human Rights Act mandates the NHRC to perform the following:
 - Proactively or reactively inquire into violations of human rights by government of India or negligence of such violation by a public servant
 - The protection of human rights and recommend measures for their effective implementation
- The NHRC consists of the Chairman and Five members (excluding the ex-officio members)
 - The Chairpersons of National Commissions viz., National Commission for Scheduled Castes, National Commission for Scheduled Tribes, National Commission for Women, National Commission for Minorities, National Commission for Backward Classes, National Commission for Protection of Child Rights; and the Chief Commissioner for Persons with Disabilities serve as ex officio members of NHRC.
- The Chairperson and members of the NHRC are appointed by the President of India, on the recommendation of a committee consisting of:
 - The Prime Minister (Chairperson)
 - The Home Minister
 - The Leader of the Opposition in the Lok Sabha
 - The Leader of the Opposition in the Rajya Sabha
 - The Speaker of the Lok Sabha
 - The Deputy Chairman of the Rajya Sabha

Context:

• The Calcutta High Court has directed the Chairperson of the National Human Rights Commission (NHRC) to constitute a committee to **examine complaints of post-poll violence in West Bengal.**

4. Abuzz with cicadas

Cicadas:

- Periodical cicadas have a 13- or 17-year life cycle.
- These cicadas spend most of their lives underground. They grow burrowed in the ground by feeding on root xylem for 13 or 17 years. During this time, they complete their developmental stages entirely underground. These developed nymphs emerge from the ground by making holes and then transform into adults, reproduce and die.
- The climate warming seems to be having an impact on their periodic emergence from the ground. With climate warming, we are seeing more four-year early emergences in larger numbers.
- There are three species of cicadas found in the Indian subcontinent Chremistica mixta (found in Sri Lanka), C. seminiger (found in the Nilgiri hills) and C. ribhoi (discovered in Ri-Bhoi district of Meghalaya).

Context:



Cicadas have emerged across eastern parts of the United States.

G. Tidbits

1. Rajasthan women vow to nurture 'green family'

- As part of the 'World Day to Combat Desertification and Drought' celebrations, women volunteers in 33 panchayats of Rajasthan planted 5,100 saplings as part of Harit Marubhumi (green desert land) drive.
- They also took a pledge to **treat the plants as "green members" of their families** and owned up the responsibility of keeping the plants safe until they grow into trees, shrubs and perennial herbs.
- The campaign apart from being an attempt at land restoration and conservation, helps highlight
 the crucial interconnection between humanity and nature, which in turn helps generate
 environmental sensitivity and empowerment.
- The campaign was guided by Shyam Sunder Jyani, the recipient of 2021's Land for Life Award of the UN.
 - The award was given by the UN Convention to Combat Desertification in recognition of his contribution to promote "familial forestry",e, relating the tree with the family.

2. 'Digital surge not to unduly raise emissions'

- Information technology-related electricity demand is expected to increase by almost 50% by 2030.
- The decarbonizing of the electric system and shift towards renewable energy sources will help mitigate the increase in subsequent CO2 emissions.

H. UPSC Prelims Practice Questions

Q1. Total Fertility Rate is:

- a. The total number of children born in a country in a given year divided by its population in that year.
- b. The average number of children expected to be born per woman during her entire span of reproductive period.
- c. The average number of children each woman needs to have to maintain current population levels.
- d. The number of live births per 1000 persons in a population in a given year.

Answer: b

Explanation:

• The total fertility rate of a population is the average number of children that would be born to a woman over her lifetime she was to live from birth until the end of her reproductive life.

Q2. Black money is generated in which of the following ways?

1. Tax evasion



- 2. Tax avoidance
- 3. Smuggling
- 4. Hawala
- 5. Tax planning

Choose the correct option:

- a. 1, 3, 4 and 5 only
- b. 1, 3 and 4 only
- c. 3 and 4 only
- d. 1, 2, 3 and 4 only

Answer: d

Explanation:

- Tax evasion, tax avoidance, smuggling and hawala transactions lead to generation of black money.
 - Tax evasion is where an entity/ a person wilfully does not pay taxes that are due to the government.
 - Tax avoidance is where an entity takes advantage of the existing loopholes in the system and avoids paying taxes. This is not illegal.
 - Hawala is an informal method of transferring money without any physical money actually moving. It is described as a "money transfer without money movement
- Tax Planning involves ensuring savings on taxes while simultaneously conforming to the legal obligations and requirements of the tax laws hence it does not amount to generation of black money.

Q3. Which of the statement/s with respect to the Convention on Mutual Administrative Assistance in Tax Matters is/are correct?

- 1. It was developed jointly by the Organisation for Economic Co-operation and Development (OECD) and the Council of Europe.
- 2. This Convention deals with issues such as exchange of information, assistance in the collection of taxes and tax dispute resolution.
- 3. All the BRICS countries are signatories to the convention.

Options:

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

Answer: c

Explanation:



- The Convention on Mutual Administrative Assistance in Tax Matters is a convention to facilitate the
 entering into bilateral tax information exchange agreements between state parties. The Convention
 was developed by the OECD and the Council of Europe.
- This Convention deals with administrative tax issues, such as exchange of information, assistance in the collection of taxes and dispute resolution.
- All the BRICS countries are signatories to the convention.

Q4. Consider the following statements:

- 1. Article 370 was a part of the Constitution at the time of its commencement on January 26, 1950.
- 2. The Gupkar Alliance is a grouping comprising various political parties and civil society organizations.
- 3. The first Gupkar declaration was signed before the abrogation of Article 370.

Which of the given statement/s is/are correct?

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

Answer: c

Explanation:

- Articles 370 and 371 were part of the Constitution at the time of its commencement on January 26, 1950
- The Gupkar alliance is an alliance of seven political parties in Jammu and Kashmir.
- A day before the revocation of Article 370, the J&K parties had joined hands on August 4 and signed the "Gupkar Declaration" and vowed to protect J&K's special status

Q5. The term "sixth mass extinction/sixth extinction" is often mentioned in the news in the context of the discussion of:

- a. Widespread monoculture practices in agriculture and large-scale commercial farming with indiscriminate use of chemicals in many parts of the world that may result in the loss of good native ecosystems.
- b. Fears of a possible collision of a meteorite with the Earth in the near future in the manner it happened 65 million years ago that caused the mass extinction of many species including those of dinosaurs. .
- c. Large scale cultivation of genetically modified crops in many parts of the world and promoting their cultivation in other parts of the world which may cause the disappearance of good native crop plants and the loss of food biodiversity.
- d. Mankind's over-exploitation/misuse of natural resources, fragmentation/loss of natural habitats, destruction of ecosystems, pollution and global climate change.



Answer: d

Explanation:

- The Holocene extinction, otherwise referred to as the sixth mass extinction or Anthropocene extinction, is an ongoing extinction event of species during the present Holocene epoch (with the more recent time sometimes called Anthropocene) as a result of human activity.
- Mankind's over-exploitation/misuse of natural resources, fragmentation/loss of natural habitats, destruction of ecosystems, pollution and global climate change are said to be contributing to this extinction.

I. UPSC Mains Practice Questions

- 1. What do you understand by gain-of-function research? Discuss the potential benefits and risks associated with such research. (10 Marks, 150 Words)[GS-3,Science and Technology]
- 2. Throwing light on the origins of the North Atlantic Treaty Organization (NATO), examine if NATO should reinvent itself in the 21st century to meet the new age challenges. (15 Marks, 250 Words)[GS-2, International Relations]

