

ENVIRONMENT

❖ **The conflict behind eco-sensitive zones**

➤ **CONTEXT:** Ecologically sensitive zones (ESZ) are intended to safeguard 'protected areas' — national parks and wildlife sanctuaries — by transitioning from an area of lower protection to an area of higher protection. However, the creation of these zones has provoked protests in Kerala and some other regions, in a precursor to what is likely to emerge in other parts of the country.

➤ **What are protected areas?**

- Protected areas cover 5.26% of India's land area as 108 national parks and 564 wildlife sanctuaries. They are notified under the Wildlife (Protection) Act 1972. Protected areas do away with even those activities permitted in 'reserve forests', where the rights of forest-dependent communities (those residing on and/or accessing forest land) are extinguished, unless specifically allowed.
- However, this rights-negating 'fortress conservation model', has come under repeated criticism from conservation scientists, bringing in the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 which is also known as the Forest Rights Act (FRA). FRA recognises the customary and traditional rights (both individual and collective) of forest-dwellers on forest land, including in protected areas.

➤ **How is the FRA being implemented?**

- By bringing in the FRA, lawmakers were trying to undo a historic injustice done to the forest dwelling community of India.
- The Ministry of Environment, Forests and Climate Change (MoEFCC) reckoned in 2009 itself that doing so would mean handing over at least four lakh sq. km (more than half of India's notified forest area) to village-level institutions. But as of June 2022, only 64,873.70 sq. km (or 16%) has come under the FRA. (The actual area is likely smaller as some areas have been counted multiple times for different rights.)
- However, this has been achieved in only a decade and a half, compared to no improvements in the six decades before.
- This is attributed to the gram sabhas which took over the power to determine rights through open democratic process from government officials.
- These gram sabhas are now the statutory authorities empowered to conserve, protect and manage forests, wildlife and biodiversity lying within the traditional village boundaries.
- These areas under gram sabhas are to be a new category of forests called 'community forest resource' (CFR). Gram sabhas have to integrate their CFR conservation and management plan into the 'working plan' of the Forest Department, with the required modifications.

➤ **What are ESZs?**

- Surrounding protected areas is a region of more than 1,11,000 sq. km (or 3.4% percent of the country's land) which falls under the ESZ regime. Governments have notified 341 ESZs in 29 States and five Union territories, while another 85 ESZs are awaiting notification. Together, protected areas and ESZs cover 8.66% of India's land area.
- The ESZs span notified forests outside protected areas, most of which could also come under gram sabhas' jurisdiction under the FRA. The extent of ESZs from the boundary of a protected area ranges from 0 to as much as 45.82 km (in Pin Valley National Park, Himachal Pradesh). Fifteen States have ESZs exceeding 10 km.

➤ **What is the problem?**

- Significantly, parts of the ESZs in ten States (Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan and Telangana) fall within the Scheduled Areas notified under the Fifth Schedule of the Constitution.
- Such Scheduled Areas cover over 11% of the country's land area and are thickly forested and mountainous. They are preponderantly populated by Scheduled Tribe groups and are notified by the President under Article 244 where the Provisions of the Panchayat (Extension to Scheduled Areas) Act (PESA) 1996 apply. The PESA recognises habitation-level gram sabhas to be competent to safeguard and preserve community resources on forest and revenue lands in Scheduled Areas.
- However, the MoEFCC has shown no inclination to amend the Indian Forest Act 1927, the Wildlife (Protection) Act, 1972 and the Environment (Protection) Act 1986 (under which ESZs are notified) to comply with the PESA and FRA.
 - ✓ In fact, in the Forest Conservation Rules, compliance with the FRA, recognition of forest rights and the gram sabha's consent were preconditions for considering proposals to divert forest land for non-forestry purposes — until the MoEFCC did away with them in 2022.
 - ✓ The Ministry has also overlooked demands by the National Commission for Scheduled Tribes to restore the erstwhile FRA compliance procedure.

➤ **How exactly were the ESZs implemented?**

- The 2002 Wildlife Conservation Strategy envisaged lands within 10 km of the boundaries of protected areas to be notified as ecologically fragile zones under Section 3(2)(v) of the Environment Protection Act 1986 and its Rules 5(viii) and (x). The MoEFCC was to take steps to protect the environment by regulating and (if required)

prohibiting industries, operations and processes. Rule 5(1)(vi) provided for environmentally compatible land-use in areas around protected areas.

- In 2005, the National Board for Wildlife decided to delineate site-specific ESZs to regulate specific activities instead of prohibiting them. Therefore, in May 2005, the MoEFCC asked the States and UTs to propose ESZs.
- The MoEFCC guidelines for ESZs stated that based on the forest rangers' inventory of land-use and wildlife corridors within 10 km of each protected area, a committee consisting of the Wildlife Warden, an ecologist, and an official from the local government was to determine the extent of each ESZ, the nature of environmental concerns to be addressed and ways to address them. The Chief Wildlife Warden was to then list the activities that were to be prohibited, to be restricted with safeguards and to be permitted.
- After this process, the State government would submit this list, the geographical description of the area and the biodiversity values, the rights and entitlements of local communities, and their economic potential and implications for their livelihoods, as a proposal to the MoEFCC for notification. The guidelines also outlined a general indicative list of activities to be prohibited, regulated or permitted and information to be incorporated in the proposal.
- Within two years of notification, the State government is required to draft a Zonal Master Plan for each ESZ in consultation with a number of departments. However, there has been no information to the public on a Zonal Master Plan since 2012, when ESZs first began to be notified.
- Additionally, to monitor compliance with the various provisions of each notification, a State had to set up a monitoring committee for each ESZ. The committee is required to report the actions taken, to the Chief Wildlife Warden every year.
- Unfortunately, the institutional mechanisms and procedures prescribed in the guidelines and the ESZ notifications disregarded many legal facts and statutory requirements. They set aside the habitation-level gram sabhas in Scheduled Area and CFR forests and the Panchayat-raj institutions entrusted with soil conservation, water management, social forestry, etc., even though those activities fall squarely within the scope of ESZs. In effect, what ought to have been a location, community and ecology specific plan, arrived at through people's informed participation, became a 'one size fits all' notification.
- **What has led to the protests?**
- On June 3, 2022, the Supreme Court gave further directions on ESZs.
 - ✓ First, the Court said that the MoEFCC guidelines are also to be implemented in the area proposed in the draft notification awaiting finalisation and within a 10-km radius of yet-to-be-proposed protected areas. The Court also allowed States to increase or decrease the minimum width of ESZs.
 - ✓ Secondly, the Court vested the powers to ensure compliance with the guidelines with the Principal Chief Conservator of Forests (PCCF) and the Home Secretary of the State/UT. The PCCF was to make a list of all structures within the ESZs and report it to the Supreme Court within three months (this is yet to be done). The Court also ordered that no new permanent structure could come up for any purpose within an ESZ.
- This effectively meant that all the activities permitted by the guidelines and which are already being carried out can continue only if the PCCF grants permission, and that too within six months of the court's order. This period has already expired. Additionally, the Court's directions have put the lives of many people in the hands of the PCCF — whose authority now extends beyond the forest to revenue lands falling within an ESZ. This has led to protests in Kerala.
- The new structures that are banned could include electric poles, buildings, walls, roads and bridges. Millions of forest-dwellers living on forest land and on the fringes of forests are the most affected. After having been denied forest rights, they are now also denied better public infrastructure. The government and the judiciary need to reconcile laws, reaffirm democratic governance, and protect the environment and as well as livelihoods.

SCIENCE AND TECHNOLOGY

- ❖ **Viral nutrition: new study reveals microbes nourished by consuming viruses**
- **CONTEXT: Researchers at the University of Nebraska-Lincoln have reported that a particular genus of plankton, namely Halteria, can 'grow and divide given only viruses to eat'. This could be significant for the marine food chain**
- At various peaks of the COVID-19 pandemic, viruses have had a reputation as destroyers of public health systems and human lives. They have a peculiar biology — while inert outside a living body inside, they hijack the cellular machinery to feed, replicate and spread. This association with disease and death has come to define their form in the public imagination, redeemed not even by the fact that there are other microbes that destroy viruses. But a new study, published on December 27 by researchers at the University of Nebraska-Lincoln, offers to upend this.
- The authors of the study have reported that a particular genus of plankton can consume viruses as well as “grow and divide given only viruses to eat”. It already known that other cells that can ‘consume’ viruses in an effort to destroy them — such as the macrophage cells of the human immune system.
- The difference lies in being able to ‘eat’ viruses to fulfil one's biological imperatives.

- Plankton of the genus *Halteria*, they claim to have found, can each consume 10,000 to a million virus particles a day, increase their population using the metabolised energy, and provide more food for the zooplanktons that consume the *Halteria*. This could be significant for the marine food chain.

➤ **What are plankton?**

- Plankton are microscopic organisms that can only move with a current. They don't have any facilities to actively propel themselves. *Halteria* plankton are ciliates, meaning they have hair-like structures called cilia on their surface. Sometimes they can beat some of these cilia to jump short distances, but not often as it requires too much energy.

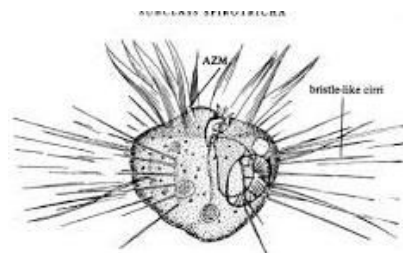


Fig. 204. *Halteria* (after Fauré-Fremiet, 1924).

- A type of plankton (the phytoplankton) is found nearer the surface of many water bodies. It is an autotroph, which means it can make its own food by consuming carbon dioxide, among other compounds, through photosynthesis. Small fish and larger plankton called zooplankton eat phytoplankton for their nutrition; they are in turn eaten by larger fish, and so forth.

- When phytoplankton die, they drift around where they are, becoming part of a coastal nutrient cycle, or they drift down towards the seafloor, where they decompose. Their constituents then become available for microbes or are sequestered into the seafloor.

- So, phytoplankton bring carbon and other nutrients from the atmosphere and sea surface down to the seafloor and help replenish the food chain (and also 'trap' carbon into their own bodies and as sediments). They are joined by bacteria that make their own food by oxidising sulphur, iron or hydrogen, in a process called chemosynthesis.

➤ **The role of Halteria**

- *Halteria* plankton are found in large numbers in freshwater bodies. They are heterotrophs meaning they can't produce their own food. Instead, they are well-known bacterivores, they consume bacteria to power themselves.

- In the words of a noted 1999 paper, viruses "short-circuit" the process of nutrients moving up the food chain. They infect and kill both bacteria and plankton, releasing organic matter that dissolves in the water. Note that scientists have modelled this 'viral shunt' and studied it in the lab; investigations of its real-world impact are ongoing.

- In the new study's paper, the authors wrote that by also consuming viruses for nutrition, *Halteria* plankton can recover the nutrients lost in the viral shunt and bring them back into the food chain.

✓ "This flow would depend on virion size and nutritional content, which varies among strains," they added, "but it is already clear that viruses of a wide range of sizes can be taken up".

➤ **Redemption for viruses?**

- Viruses are the single-most populous life-form on Earth; their cumulative biomass outweighs that of humans by a factor of 1010. In 2020, Curtis Suttle, a co-author of the 1999 paper, called them "fantastic nutritional sources".

- The finding wasn't unexpected.

- In 2020, a group from the U.S. and Spain published a paper after 10 years of data-taking and study, positing that some protists (eukaryotes that aren't plants, animals or fungi; eukaryotes are organisms whose cells have nuclei) might be munching on viruses. Their findings "indicate that the viral shunt is complemented by a viral link in the marine microbial food web".

- In the new study, the researchers found that *Halteria* plankton reduced the population of chloroviruses 'fed' to them while growing their own numbers — whereas *Paramecium* ciliates consumed the chloroviruses but didn't proliferate. That is, to quote from their paper, "not all ciliates can grow on chloroviruses in these conditions, even when they consume them".

- Second, as the population of viruses and *Halteria* changed over the course of their interaction (in the lab), the researchers used a modelling tool to understand if they fit what we already know about predator-prey interactions in the wild.

- The model indicated that they did, biologist and the lead researcher, have to go find out if this is true in nature and they don't yet know how *Halteria* feeding on viruses could have affected viral evolution.

PRELIMS

1. Sanctions Committee of UNSC

➤ **CONTEXT: Recently, the UNSC committee finally added Abdul Rehman Makki to its sanctions list after China lifted the hold.**

- The sanctions committee said while Makki held leadership positions within LeT and JUD, the LeT was involved in prominent attacks. The list included seven such attacks — the Red Fort attack by six LeT terrorists (2000), a CRPF camp attack in Rampur (2008), a series of attacks in Mumbai (2008), a CRPF camp attack in Srinagar (2018), Baramulla attack killing three civilians (2018), killing of Kashmir-based journalist Shujaat Bukhari (2018) and the Bandipora attack (2018) in which four Army soldiers were killed as they foiled a major infiltration bid along the Line of Control (LoC) in the Gurez sector of J&K.

➤ **About**

- The 1267 Sanctions Committee is one of the several UN Security Council sanctions panels that impose restrictions on those linked to the Islamic State and Al-Qaeda. It implements international sanctions against terrorists considered a global threat.
- The committee was established in 1999 as the Al-Qaeda and Taliban Sanctions Committee under resolution 1267. The resolution imposed a limited air embargo and assets freeze on the Taliban and decided to prepare regularly updated list of Taliban and Al-Qaeda members sheltering there, mainly Osama Bin Laden.
- A separate committee was later set up for the Taliban. The panel was renamed as the Al-Qaeda Sanctions Committee to focus on Al-Qaeda and the Islamic State. The ISIL (Islamic State in Iraq and the Levant) is known as Da'esh in Arabic.
- The UNSC adopted another resolution in 2021 reaffirming assets freezes, travel bans and arms embargoes against individuals, groups, and entities subject to sanctions in the consolidated list.
- The 1267 Al-Qaeda Sanctions Committee comprises 15 members of the Security Council. The current Chair is Norway's Trine Heimerback, while the two Vice-Chairs are with Russia and the United Arab Emirates.
- **What does this sanction mean?**
 - A person on this list cannot access funds, buy weapons or travel to other territories.
 - Pakistan was on the grey list of the Financial Action Task Force for almost four years for its failure to effectively prosecute and convict terrorists on the UNSC list, as it is obligated to do. While on the list, Pakistan was required to offer additional guarantees while borrowing from international donors such as the International Monetary Fund.
 - The international watchdog, however, removed Pakistan's name from the list of countries under "increased monitoring" in October 2022 after a consensus decision by all members, including India.
- 2. **National Commission for Women (NCW)**
 - **CONTEXT: The National Commission for Women (NCW) organized an 'All India Nodal Officers Meeting on Acid Attack' to deliberate, discuss, and share suggestions to resolve the issues regarding sale and purchase of acid and other corrosive substances, compensation for survivors, treatment and rehabilitation of survivors, among other topics.**
 - **About**
 - The NCW is the statutory body generally concerned with advising the government on all policy matters affecting women.
 - It was established on 31 January 1992 under the provisions of the Indian Constitution as defined in the 1990 National Commission for Women Act.
 - The first head of the commission was Jayanti Patnaik.
 - **Constitutional provision:** The Indian Constitution doesn't contain any provision specifically made to favor women intrinsically. Article 15 (3), Article 14 and Article 21 protect and safeguard women. They are more gender-neutral.
 - **Objectives**
 - The objective of the NCW is to represent the rights of women in India and to provide a voice for their issues and concerns.
 - The subjects of their campaigns have included dowry, politics, religion, equal representation for women in jobs, and the exploitation of women for labor.
 - They have also discussed police abuses against women.
 - **Composition :** The Commission shall consist of:
 - A Chairperson, committed to the cause of women, to be nominated by the Central Government.
 - five Members to be nominated by the Central Government from amongst persons of ability, integrity and standing who have had experience in law or legislation, trade unionism, management of an industry potential of women, women's voluntary organizations (including women activist), administration, economic development, health, education or social welfare;
 - Provided that at least one Member each shall be from amongst persons belonging to the Scheduled Castes and Scheduled Tribes respectively;
 - **Powers of NCW**
 - Provide consultation on all major policy matters that affect women.
 - Issuing summons for the examination of documents and the witnesses.
 - It has the power to make any public record.
 - Receiving evidence on affidavits
 - Discovery and production of documents
 - Summoning and enforcement
 - **Functions of the NCW**
 - Presentation of reports: Table reports should be submitted to the Central Government every year. When the commission feels it's appropriate. The reports upon the functioning and working of the safeguards.

- Investigation and Examination: There should be proper investigation and examination made under the Constitution and other laws. This is related to the protection of the rights of women.
- Review of laws: Constantly all laws are reviewed and scrutinized. And necessary amendments and alterations are made to meet the needs of the current world.
- Cases of Violation: Ensure there is no violation against women and taking due care of such cases.
- Suo Motu Notice: It takes care of complaints and also suo motu matters about the deprivation of rights of women. Implementation of laws favoring the welfare of women.
- Evaluation: Assessing the development and the progress of the women community under the Center and State level.
- Special studies and investigation: To understand the limitations in the system and curb it with strategic plans and mechanisms.

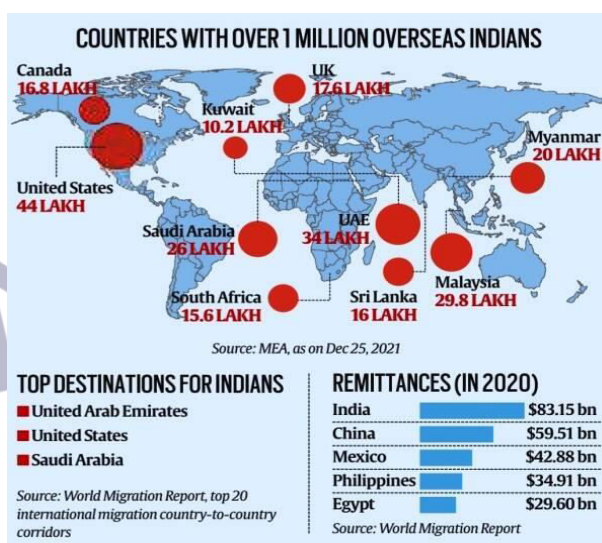
ANSWER WRITING

Q “Diasporas are recognized as soft power in the realm of foreign policy strategy and also as a catalyst of economic development of countries of origin” In this context map out the distribution of Indian diaspora and its contribution in the overall development of India.

Diasporas are a symbol of a nation’s pride and represent their country internationally. The diaspora’s ability to spread Indian soft power, lobby for India’s national interests, and contribute economically to India’s rise is now well-recognized. They have emerged as an ‘inevitable link’ between their home and host lands, with major political and economic implications for both sides.

Distribution of Indian Diaspora:

- According to a report from the Parliamentary committee on external affairs, 4.7 crore Indians were living overseas as on December 2021. The number includes Non-resident Indians (NRIs), Persons of Indian Origin (PIOs), Overseas Indians (OCIs), and students.
- According to the World Migration Report, India has the largest emigrant population in the world, making it the top origin country globally, followed by Mexico, Russian and China.
- Numbers shared by the government in Parliament in 2022 show that the geographical spread of the Indian diaspora is vast. While some transnational populations are clustered in one country or region, the Indian diaspora is present in all continents and regions from the Gulf to Northern America to Australia and the UK.



- The US, Saudi Arabia, the United Arab Emirates, Malaysia, Myanmar, the UK, Sri Lanka, South Africa and Canada host an Indian diasporic population of at least one million each.
- United States of America (44 lakh), United Arab Emirates (34 lakh) and Saudi Arabia (26 lakh) are the top three destinations of Indians.

Contribution of Indian diaspora in the development of the country:

- Remittances: These are a vital source of household income for low- and middle-income countries like India. According to World Bank Migration and Development brief “For the first time a single country, India, is on track to receive more than \$100 billion in yearly remittances.”
- Political Influence: Diaspora plays an important role in influencing the policies and politics of its host country in favour of its country of origin and the development of good ties and relations between both countries.
- Boosting bilateral ties: Indian diaspora is an important part of India’s soft diplomacy. For example, it has played an important role in the fructification of the Indo-US nuclear deal.
- Spread of Indian culture and tradition: Indian diaspora has helped in the spread of Indigenous cuisines, yoga, and ayurveda in different parts of the world.
- Technology transfer: Diaspora based in developed countries which are technologically advanced and rich in innovation. They help in bringing these technologies to their country of origin.
- Bringing Investments: Indian diaspora contributes to the Indian development story by investing in greenfield and brownfield projects, as well as, portfolio investments in India.

In recent times Government of India has laid a strong foundation by making diplomacy people-centric through engagements like the Pravasi Bhartiya Divas, Know India Programme, Study India Programme and tracing the roots initiative. Therefore, with the versatile role of the diaspora, India could fulfil its cherished dream of being a superpower and it could make much headway in its international and foreign affairs.

MCQs

1. The Sanctions Committee of the UN Nations Security Council was in news recently. Consider the following statements regarding the committee:
 1. The Sanctions Committee of the UN Nations Security Council was established under Resolution 1267, which imposed limited sanctions on the Taliban.
 2. UN Security Council (UNSC) has placed Abdul Rehman Makki, a fundraiser and key planner of the Pakistan-based terrorist outfit Lashkar-e-Taiba (LeT), on its sanctions list.
 3. The sanctions committee also oversees the implementation of the sanctions measures and reports annually to the Security Council on the implementation of these measures
 Which of the given statements is correct?
 a) 1 and 2 only b) 2 and 3 only c) 1 and 3 only **d) 1,2 and 3**
2. With reference to 'Eco-Sensitive Zones', which of the following statements is/are correct?
 1. Eco-Sensitive Zones are the areas that are declared under the Wildlife (Protection) Act, 1972
 2. The purpose of the declaration of Eco-Sensitive Zones is to prohibit all kinds of human activities in those zones except agriculture.
 Select the correct answer using the code given below.
 a) 1 only b) 2 only c) Both 1 and 2 **d) Neither 1 nor 2**
3. With reference to National Commission for Women consider the following
 1. The NCW is only recommendatory and has no power to enforce its decisions.
 2. Commission lacks constitutional status, and thus has no legal powers to summon police officers or witnesses.
 3. It does not have the power to choose its own members.
 Choose the correct statement using the codes given below
 a) 1 and 2 only b) 2 and 3 only c) 1 and 3 only **d) 1,2 and 3**
4. Nagarjunasagar Srisaigram Tiger Reserve (NSTR) recently seen in news is situated in which of the following state?
a) Andhra Pradesh b) Tamil Nadu c) Kanata d) Kerala
5. With reference to spot-bellied eagle owl (Bubo Nipalensis) which was seen for the first time in the Seshachalam forest, and for the third time in Andhra Pradesh, consider the following
 1. It is a forest-inhabiting species found in the Indian Subcontinent and Southeast Asia
 2. The IUCN status of this owl is Vulnerable
 Choose the correct statement/s using the codes given below
a) 1 only b) 2 only c) Both 1 and 2 d) Neither 1 nor 2
6. With reference to Phytoplankton consider the following statements:
 1. It has a great role in making the ocean the largest carbon sink.
 2. They are the first tropic level component of aquatic food chain.
 3. It uses bioluminescence phenomenon for communication when they have stresses in the water body.
 Which of the statements given above is/are correct?
 a) 1 only b) 1 and 2 only c) 2 and 3 only **d) 1, 2 and 3**
7. With reference to forest advisory committee consider the following
 1. It is a statutory body which was constituted by the Forest right Act 2006.
 2. It comes under the Ministry of Environment, Forests & Climate Change (MoEF&CC).
 Which of the above statement/s is/are not correct?
a) 1 only b) 2 only c) Both 1 and 2 d) Neither 1 nor 2
8. With reference to Memorandum of Procedure (MoP) consider the following
 1. It is an agreement between the judiciary and the government which contains a set of guidelines for making appointments to the Supreme Court and High Court
 2. The Supreme Court of India sets a timeline for the Centre to clear names recommended by the Collegium.
 Which of the above statement/s is/are correct?
 a) 1 only b) 2 only **c) Both 1 and 2** d) Neither 1 nor 2
9. With reference to Rare Earth Elements, consider the following categories:
 1. Computers and networks
 2. Communications clean energy
 3. Environmental mitigation
 4. Healthcare
 5. National Defence
 Rare Earth Elements are used in
 a) 1, 2 and 4 only b) 1, 2, 3 and 4 only c) 2, 3, 4 and 5 only **d) 1, 2, 3, 4 and 5**
10. "VIRAASAT" initiative often mentioned in news recently associated with which of the following ministry?
a) Ministry of Textiles
 b) Ministry of Education
 c) Ministry of Finance
 d) Ministry of Environment and climate change