

CM402 END SEMESTER EXAMINATION

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SECTION A

**Evidence of climate change is all around us. Scientists and International organizations such as the IPCC have carried out extensive research to document climate change and its impacts. Yet, there is little action to combat the impacts of climate change through mitigation, reducing vulnerabilities and putting in place efficient adaptation strategies. What are the reasons many political leaders do not accept human contribution to climate change? What is Giddens' paradox, and what are the reasons for Giddens' paradox? Do you think the Indian government takes climate change seriously based on their statements in public and their response to climate change concerns? Explain your answer.**

ANSWER:

Despite scientific evidence, governments all over the world are not keen on making climate change top priority for the head of state. Climate policymaking in the country will be driven, or restrained, by domestic imperatives and the country's **institutional capacity** to influence political decision-making. Political leaders in general do not pay enough attention to institutions which tend to show resistance to their campaigns and force them to "unlearn" things about the environment, since it is customary to believe that the Earth has been stable for so many years, and will be for years to come. They tend to have a shorter view into the future compared to scientists.

Since Global warming is a slow process, dangers associated with it are not tangible or visible in daily life. Hence, it will appear that there is not an immediate need to do something about it, but once the serious effects are visible, it would be too late to act upon them. This is termed as the **Giddens'** paradox. The premise of this statement lies in the fact that a climate system is extremely delicate and is held in equilibrium by many feedback processes. There are many unstable feedback processes (ex: Albedo-ice effect) that run in the background, but once the disturbance crosses a certain threshold, there is no stopping the imminent rapid change that may occur in the climate system. This would exacerbate climate change in a vicious cycle.

The Indian government has not been completely blind to climate change, but has also been very dismissive to the public at times. It has launched a NAPCC to tackle the immediate and the chronic effects of climate change. The various missions under NAPCC focus on different aspects of mitigation and adaptation to climate change. However, while some missions are very insightful with a large scope (National Solar mission, Strategic Knowledge mission), others have many weaknesses (National Water mission). Also, there have been extended periods of dormancy by the NAPCC, and therefore it may appear that the Indian government is not exactly prioritizing climate change like the NAPCC intends it to.

## SECTION B

3. In recent years, young people and children around the world have launched climate strikes and movements for climate action. In these movements (as in the case of Greta Thurnberg), there is extensive use of science, scientific arguments and support of scientists. There is criticism of the failure of governments and political leaders to accept and act upon scientific knowledge about climate change and its impacts. What according to you are the reasons for government officials and political leaders to not fully accept scientific findings on climate change? Why are young people in climate movements forcefully arguing for scientific evidence while designing action policies on climate change? (Since it is not mentioned, I will not be restricting myself to Indian policies)

### ANSWER:

The documentary “I am Greta” provides a great insight into a young climate activist’s life. Climate activists appeal to the public by referring to data that has been measured by scientists and figures that are extrapolated by other scientists to outline the situation in brief and the course of the Earth’s climate system in the foreseeable future. However, there has been a sharp resistance to climate action movements from political leaders throughout the world, particularly by heads of state of large democracies like the USA and France. Many political leaders ridiculed Greta and called her a “spoiled little brat” and told her to “go to school”.

I think that because of a multitude of reasons, political leaders will not take climate movements seriously:

- Headed by a “child” with little idea about how policymaking at the Global level works
- They cause resistance to their campaigns and advocate opposite ideals- say, like how one must not travel on a flight to reduce pollution. Hence, they dismiss climate movements as ridiculous
- They have a near-sighted view into the future, while young people involved in climate movements tend to be very far-sighted
- They genuinely can not understand scientific facts and figures, in which case usability gap must be addressed
- They are in **denial**- they may resort to the explanation that the Earth has its own natural “cycles” (which is true) and that anthropogenic influence is not pronounced
- They have **accepted**- they do believe in scientific evidence but think that nothing can be done to change the course that we have undertaken

It is the young people that have been rallying in climate movements because they are going to be the major **stakeholders** soon, while the political leaders that reign now will lose stake, and thus are being called “selfish” by the climate activists.

5. According to Byravan and Rajan, what are the main weaknesses in the National Missions on Agriculture and Water? What according to you are the reasons for these weaknesses? What action should the Indian government take to address these weaknesses? What are the consequences or adverse impacts of these weaknesses in your view?

**ANSWER:**

Weaknesses of National Mission on Agriculture:

- Sustainable agriculture mission does not cater to poor/marginal farmers
- Sustainable farming practises are very generalized- do not specify different agro-climatic zones
- Fuel/ fertilizer shortage has not been addressed
- Urgency of the problems in agricultural sector has not been emphasised, and the government may not prioritize it

Weaknesses of National Mission on Water:

- There has been minimal effort to integrate this mission with climate change
- Developmental concerns in the water sector, and demand management of water has not been prioritized
- The mission is not in the lines of the guiding principles of NAPCC

These weaknesses may highlight the lack of comprehensiveness and meticulousness while the missions were framed. There is a plan, but no particular direction to get there. The missions do have very insightful goals, which could play a huge role in mitigation and adaptation to imminent climate change. Therefore, they could be because of the lack of specificity while framing these policies.

The Indian government can concentrate more on specific circumstances (to a socio-economic class, region, time of the year) by making goals more realistic. State Action Plans must be given more importance and budget, and distributed authority should be set up between States and the Centre. Credit and influence facilities must be given to poorer farmers. There should be coordination among institutional structures like Central Water Commission, Central Ground Water Board and National Rainfed Areas Authority and these should be systematically integrated with the work plan of the Ministry of Water Resources.

These weaknesses may inhibit the reaching of the goals that are outlined by the NAPCC missions, because of the generality of the circumstances assumed and in some cases, the far-fetched goals. They could also result in non-coordination between the State and the National action plans thereby not resulting in any actual progress. Therefore, these weaknesses must be attended to.

## SECTION C

4. What is prismatic vulnerability? Why is it necessary to understand social inequalities to better understand vulnerability to climate change? Give two examples from the Indian context

ANSWER:

In the socio-economic context, it is a given that different sections of the society are affected differently by governmental policies. In this case, certain groups are forced to choose between different forms of vulnerability as a risk management and a mitigation technique. The premise is that disaster vulnerability is **socio-economically** constructed, and is bound to be **unequally distributed**. Certain **classes** of people (on the basis of everyday social and economic circumstances) such as the poor, the senior citizens, the women-headed households and recent residents are at a greater risk throughout a certain disaster response process.



Therefore, different social divisions and axes of inequality and discrimination, combined with rich and middle class domination of the public sphere and governance failures get “refracted” through a disaster and result in unique forms of vulnerability for each class. Prismatic vulnerability is defined as “*outcome of refraction of various inequities and adverse factors in society through a particular hazard*” Since governmental policies tend to cater towards a certain section of society, this leaves the other sections more vulnerable and helpless to disasters. Hence, it greatly matters to understand socio-economic inequalities to better understand vulnerabilities.

Examples in the Indian context would be:

**Mumbai floods 2005-6** : Caused by inadequate drainage systems, destruction of mangroves, reclamation of land near the Mithi river etc. but government attributed the disaster to excessive rain, and did not recognize encroachments and slums along the banks of Mithi river.

For the financial year 2020-2021, the Indian government allocated Rs 3,100 crore to the Union environment ministry – nearly Rs 1,200 crore short of the ministry’s request of Rs 4,295 crore. These funds were diverted to industry and production and thus, air quality management was not adapted in certain planned cities. Thus, the elderly who are more vulnerable to acute lung obstructive disorders are affected more adversely compared to the younger population.

5. What are the different ways in which climate change affects the Indian Summer Monsoon? To what extent does the El Nino explain variations in the Indian Summer Monsoon? What are these variations due to El Nino? What changes have occurred to the Indian Summer Monsoon in Maharashtra due to climate change?

ANSWER:

India, being a predominantly agro-based economy depends heavily on the monsoon, and any anomaly would significantly alter the course of the Indian economy. The Indian Summer Monsoon Rainfall (ISMR) has been mercurial in the recent years with high degree of monsoon variability (intra-seasonal, inter-seasonal and regional variations). Sea temperatures have increased on average over the last 100 years. Spatial variability of the **Mean-monsoon** rainfall has decreased in a trend over the last 50 years, while the spatial variability of **Extreme** rainfall events has shown an increasing trend. Over the years, there have been more frequent but less intense dry spells but more intense wet spells. Peak-season rainfall has decreased but daily variability has increased (Singh et al. 2014).

Up to 50% of the variability of the Indian Monsoon can be explained by the El-Nino phenomenon. But however, the Atlantic Equatorial Mode (called Atlantic Nino) explains the variability in the ISMR fairly well. El-Nino occurs once every 3 to 7 years and brings about higher variability in climate- particularly, threefold increase in widespread extremes, and increase in frequency of extreme events. Arabian sea warming has led to many impacts like shifting of monsoon season (monsoon arrives faster and withdraws faster), more freak weather events and deviation from means.

- In the state of Maharashtra, individual districts have reported an increase in the wet spells/dry spells.
- Frequency of rainfall has decreased in **Ratnagiri, Raigarh, Akola** and **Amravati** while Intensity of rainfall events showed a very high increase in **Thane, Satara** and **Wardha**.
- Districts in **Vidarbha** and **Marathwada** region are at higher agricultural risk.
- Further, Extreme rainfall is projected to increase in all regions with greater increases in the northern parts of the state (**Aurangabad** and northern regions of **Nashik** division)

Therefore, the impacts that climate change has had on Maharashtra (and specifically Mumbai) are significant and the projections do not give any relief either.