



CURRENT AFFAIRS



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TIPPING POINTS

This article covers "Daily Current Affairs" and the topic details "Tipping Points". This topic has relevance in the Environment section of the UPSC CSE exam.

For Prelims:

About Tipping Points?

For Mains:

GS 3: Environment

Identified Tipping Points?

Way Forward?

Why in the news?

In a recent report by the United Nations University – Institute for Environment and Human Security (UNU-EHS), the world is edging closer to six interconnected risk tipping points. These points denote immediate and escalating threats on a global scale, encompassing various aspects of the environment and human security.

About Tipping Points

- In environmental science, a tipping point represents a critical threshold. Once this threshold is crossed, it triggers substantial and often irreversible changes in an environmental system.
- A risk tipping point signifies the moment when a socio-ecological system can no longer effectively mitigate risks and fulfill its expected functions. Beyond this juncture, the potential for catastrophic impacts on these systems significantly increases.

Identified Tipping Points

- **Extinctions:** The risk of irreversible loss of species.
- **Depleting Groundwater:** Affecting the availability of this essential resource.
- **Melting Glaciers:** The accelerated retreat of glaciers due to climate change.
- **Space Debris:** The proliferation of debris in space, posing risks to satellites and space missions.
- **Unbearable Heat:** Escalating temperatures leading to heat-related challenges.
- **Uninsurable Future:** The point at which certain risks become uninsurable due to their extreme nature.

Accelerated Extinctions

- Human-induced activities, such as land-use alteration, overexploitation, climate shifts, pollution, and the introduction of invasive species, have significantly hastened extinctions. While extinctions are part of Earth's natural evolution, the past century has witnessed the obliteration of over 400 vertebrate species.
- Shockingly, the survival of approximately one million plant and animal species remains at risk. Additionally, a substantial 32 million hectares of primary or regenerating forests vanished between 2010 and 2015.

Domino Effect on Ecosystems

- The disappearance of a single species can trigger a domino effect leading to the extinction of other dependent species, amplifying the strain on already fragile ecosystems. A prime example is the endangered gopher tortoise, which creates burrows used by more than 350 species, including the critically endangered dusky gopher frog.
- The absence of gopher tortoises could trigger the downfall of the dusky gopher frog, disrupting the balance in the entire forest ecosystem.

Depleting Groundwater Reserves

- Global aquifers, vital stores of groundwater, face a critical state, crucial for the primary freshwater source for over two billion people. Notably, 70% of this water is allocated for agricultural use. Alarmingly, 21 out of the world's 37 largest aquifers are depleting at a rate faster than they can be replenished.
- The complexity lies in the fact that aquifer water accumulation took millennia, rendering the resource effectively non-renewable, with recharging efforts demanding a similar timescale. In India, specifically in the state of Punjab, an overwhelming 78% of wells have been excessively tapped or overdrawn. Moreover, the north-western region of the country anticipates critically low groundwater levels by 2025.

Melting Glaciers:

- One critical tipping point relates to melting glaciers, which serve as vital water sources for drinking, irrigation, hydropower, and ecosystems. Due to global warming, the world's glaciers are melting at a rate twice as fast as in the preceding two decades, posing risks to approximately 9 billion people.
- Between 2000 and 2019, glaciers lost a staggering 267 gigatons of ice annually, equivalent to the mass of approximately 46,500 Great Pyramids of Giza.
- Even if global warming is limited to 1.5 degrees Celsius, we are projected to lose around 50% of glaciers by 2100, excluding those in Greenland and Antarctica.

Space Debris:

- Space debris, comprising objects ranging from tiny flecks of paint to sizable chunks of metal, presents another alarming tipping point. Among the approximately 34,260 objects orbiting Earth, merely a quarter are operational satellites, while the remainder consists of defunct satellites and discarded rocket stages.

- Additionally, an estimated 130 million fragments, measuring between 1 millimeter and 1 centimeter, are too small to track. Travelling at speeds exceeding 25,000 kilometers per hour, even the smallest debris can cause significant damage, including collisions among functional satellites.

Unbearable Heat:

- The “unbearable heat” tipping point is associated with a “wet-bulb temperature” exceeding 35°C, which combines temperature and humidity. High humidity impedes sweat evaporation, exacerbating heat effects and resulting in organ failure and brain damage, making it a dire concern.

Uninsurable Future:

- The “uninsurable future” tipping point arises from the escalating frequency and severity of extreme weather events worldwide. These events have substantially increased damage costs, complicating the provision of insurance. Since the 1970s, losses from weather-related disasters have surged sevenfold, with 2022 alone witnessing \$313 billion in global economic losses.

Charting the Path Forward

In confronting these formidable challenges, a strategic way forward beckons. It necessitates a collective global effort encompassing the following actions:

- **Global Cooperation:** Prioritize and strengthen international collaboration to tackle the shared challenges faced by the world.
- **Aggressive Emissions Reductions:** Commit to robust measures to reduce greenhouse gas emissions, combat climate change, and limit the melting of glaciers and other environmental degradation.
- **Invest in Sustainable Energy:** Direct investments towards sustainable and renewable energy sources, reducing reliance on fossil fuels and mitigating environmental risks.
- **Biodiversity Protection:** Implement strategies to safeguard biodiversity and halt the accelerating rate of species extinction.
- **Enhanced Global Health Systems:** Strengthen and prepare global healthcare systems to cope with the consequences of unbearable heat and health-related challenges associated with extreme environmental conditions.
- **Conflict Resolution Mechanisms:** Enhance international mechanisms for resolving conflicts, as cooperation and diplomacy are essential in the face of shared environmental threats.

SOURCE:

[UN University report warns about risk tipping points with irreversible impacts on people and planet – The Economic Times \(indiatimes.com\)](#)

Q.1 Consider the following statements regarding tipping points:

1. Tipping points trigger substantial, but reversible changes in an environmental system.
2. A risk tipping point denotes when a socio-ecological system can no longer mitigate risks effectively.

Which of the statements given above is/are correct?

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

ANSWER: B

Q.2 Regarding wet-bulb temperature, consider the following statements:

1. Wet bulb temperature is the highest temperature to which air can be heated by the addition of water vapor at a constant pressure.
2. Wet bulb temperature represents the point beyond which humans can no longer tolerate high temperatures due to the combined effects of heat and humidity.

Which of the statements given above is/are correct?

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

ANSWER: B

Q.3 Environmental tipping points represent a critical juncture in the balance between human activities and the Earth's ecosystems. Elucidate.

Rishabh

SCO MEETING OF THE HEADS OF GOVERNMENT

This article covers "Daily Current Affairs" and the topic details "SCO meeting of the Heads of Government". This topic has relevance in the "International Relations" section of the UPSC CSE exam.

For Prelims:

*What is the Shanghai Cooperation Organization?
Institutional Framework of SCO*

For Mains:

*GS2: International Relations
SCO as an organisation of importance for India's geopolitical interests*

WHY IN THE NEWS?

The 22nd meeting of the Heads of Government (Prime Ministers) Council of the Shanghai Cooperation Organisation occurred in Bishkek, Kyrgyzstan.

SHANGHAI COOPERATION ORGANIZATION:

- The Shanghai Cooperation Organisation (SCO) was formed by China and Russia in 2001. It focuses on politics, economics, international security, and defence in Eurasia.
- The SCO is the largest regional organisation in the world, covering about 60% of Eurasia's area and 40% of the global population. In 2021, its combined GDP accounted for roughly 20% of the global GDP.

MEMBERSHIP OF SCO:

- **Members:**
 - China, India, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan.
- **Observers:**
 - Afghanistan, Belarus, and Mongolia
- **Dialogue Partners:**
 - Azerbaijan, Armenia, Egypt, Qatar, Turkey, Saudi Arabia, the United Arab Emirates, Maldives, Nepal, and Sri Lanka

ORIGINS OF SCO:

- The SCO was formed from the original '**Shanghai Five**' alliance, which consisted of **Russia, China, Kazakhstan, Kyrgyzstan, and Tajikistan**.
- The purpose of this alliance, established in 1996 after the Soviet era, was to address regional security concerns, reduce border troop presence, and combat terrorism.
- In 2001, **Uzbekistan** was embraced into the Shanghai Five, leading to the group's transformation into the SCO.
- By June 2017, the organization experienced further expansion, reaching a total of eight member states, with the inclusion of **India and Pakistan**.
- **Iran joined the group in July 2023.**

INSTITUTIONAL FRAMEWORK:

- **SCO Councils:**
 - **SCO Heads of State Council:** This is the highest authority within the SCO, responsible for setting priorities, defining the Organization's primary activities, determining its internal structure, managing its interactions with other States and international organisations, and addressing pressing global issues.
 - **SCO Heads of Government Council:** This Council, comprising Prime Ministers, is responsible for approving the Organization's budget and making decisions related to specific areas of interaction, especially those of an economic nature, within the SCO.
 - **SCO Foreign Ministers Council:** This council focuses on the day-to-day operations of the SCO, including preparing Heads of State Council meetings and conducting consultations on international issues. Additionally, it has the authority, when appropriate, to issue statements on behalf of the SCO.
- Two permanent bodies support the organisation:
 - **SCO Secretariat** located in Beijing
 - **Executive Committee of the Regional Anti-Terrorist Structure** has its headquarters in Tashkent.
- **Chinese and Russian** serve as the recognised official languages within the SCO.

OBJECTIVES OF THE SCO:

- **Enhancing mutual trust and fostering neighbourly relations** among participating nations
- Facilitating **comprehensive collaboration across diverse sectors** such as politics, commerce, economics, scientific research, technology, cultural exchange, education, energy, transportation, tourism, and environmental conservation
- Collectively striving to uphold **peace, security, and stability** within the region

- Dedicating efforts to shape a **global political and economic framework** that embodies democratic principles, fairness, and rationality

Regional Anti-Terrorist Structure (RATS):

- The Regional Anti-Terrorist Structure (RATS) Executive Committee, based in Tashkent, Uzbekistan, is a permanent body of the SCO.
- Its primary purpose is facilitating cooperation among member states in combating the three evils of terrorism, separatism, and extremism.
- The appointment of the Director of the SCO RATS Executive Committee is for a duration of three years.
- Each member state appoints a permanent representative to RATS to ensure continuous communication and coordination.

MORE ABOUT THE NEWS: SCO MEETING OF THE HEADS OF GOVERNMENT

- The **SCO Council of Heads of Government (CHG)** convenes **annually** to deliberate on strategies for multilateral cooperation and to approve the organisation's yearly budget, among other agenda items.
- The External Affairs Minister of India urged members of the Shanghai Cooperation Organisation (SCO) to collaborate in advancing stability and prosperity in the region.
- He stressed the significance of strictly adhering to international law, respecting one another's sovereignty and territorial integrity, and fostering economic cooperation.
- Additionally, he highlighted the **potential of the India-Middle East-Europe Economic Corridor (IMEC)** and the **International North-South Transport Corridor (INSTC)** as catalysts for prosperity.

The SCO remains important for India due to its strategic, economic, and cultural significance, despite limited achievements. India's continued engagement in its future endeavors is crucial, and media and think tanks can play a role in monitoring developments that affect national interests.

Sources:

[SCO Council meeting of the Heads of Government in Bishkek: Outcomes and implications – News \(wionews.com\)](#)

Q1. With reference to Shanghai Cooperation Organization, consider the following statements:

1. SCO Heads of Government Council is the highest authority within the SCO.
2. The SCO Foreign Ministers Council focuses on the day-to-day operations of the SCO.
3. The SCO Secretariat is located in Beijing, China.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) None

Answer: (b)

Q2. Consider the following:

1. China
2. Kazakhstan

3. Russia
4. Tajikistan
5. Uzbekistan
6. India

How many of them were founding members of the Shanghai Cooperation Organization?

- (a) Only two
- (b) Only three
- (c) Only four
- (d) Only five

Answer: (c)

Q3. Discuss the strategic and economic significance of India's participation in the Shanghai Cooperation Organization (SCO).

Gaurav



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