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Arctic sea ice can change monsoon patterns

(The Hindu, 09-09-24)

How does Indian Monsoon work?

- In summer months, sunlight warms the Central Asian and Indian landmass more and faster than the surrounding ocean.
- This creates a low pressure band at the Tropic of Cancer called the intertropical convergence zone.
- Trade winds blowing from the southeast are subsequently deflected towards the Indian landmass due to the Coriolis force and have low pressure after they cross the equator.
- As they blow over the Arabian Sea, the winds pick up moisture and deposit that as rain over India.
- Over the landmass itself, this southwest monsoon splits into two.
 - The Arabian Sea arm brings rain to the west coast while the other arm travels to the Bay of Bengal and brings rain to India's eastern and northeastern parts.
 - The arms finally converge over Punjab and Himachal Pradesh as the Arabian Sea arm moves inward and the Bay of Bengal arm moves along the Himalaya.
- In the last two decades, climate models have shown that the surface temperatures of the Indian, the Atlantic, and the Pacific Oceans affect the ISMR.
- The circum-global teleconnection (CGT), a large-scale atmospheric wave flowing at the mid-latitudes, seemed to significantly influence the monsoon as well.

What is the significance of Arctic Sea Ice?

Arctic sea ice plays a crucial role in regulating Earth's climate by:

1. Reflecting sunlight (albedo effect)
2. Insulating the ocean from atmospheric heat
3. Influencing ocean currents and atmospheric circulation

The Arctic is warming faster than the global average, a phenomenon known as Arctic Amplification. This leads to a reduction in sea ice extent and thickness, which alters the heat exchange between the ocean and atmosphere in the Arctic region.

How does Arctic sea ice affect the Indian monsoon rainfall?

- The link between Arctic sea ice and the Indian monsoon is an example of a "teleconnection" - a climate anomaly related to another climate anomaly at a large distance.
- Declining levels of Arctic sea ice, due to climate change, could influence the monsoon's temperament.
- Less sea ice in the central Arctic leads to:
 - Lower rainfall in western and peninsular India
 - More rainfall in central and northern India
- Increased sea ice in the central Arctic can lead to:
 - Triggers cyclonic circulation in lower latitudes
 - Bolsters Rossby waves (fast-flowing streams of air high in the atmosphere created by the earth's rotation and differences in temperature and weather systems that move west to east)
 - Eventually, high pressure region is created over Central Asia, disrupting atmospheric stability over the Indian landmass
 - Bringing more rain over western and peninsular India.
- Lower sea ice levels in upper latitudes particularly in the Barents-Kara Sea region encompassing the Hudson Bay, the Gulf of St. Lawrence and the Sea of Okhotsk,
 - Delay the monsoon's onset
 - Make the monsoon more unpredictable

Can you answer the following question?

Discuss the intricate relationship between Arctic sea ice and the Indian summer monsoon rainfall.

Policy paralysis, a weakened public health sector

(The Hindu, 09-09-24)

What is Public Health?

- Public health refers to the science and practice of preventing disease, promoting health, and protecting populations from harm.
- It focuses on the collective health of communities, rather than individual health, aiming to ensure the well-being of populations.

Public health needs can be broadly categorised into three groups:

- First, are the diseases of poverty such as tuberculosis, malaria, undernutrition, maternal death, typhoid, hepatitis, and diarrhoeal diseases faced by the poor and the vulnerable. These problems are non-negotiable from a rights perspective.
- Second are the problems of the middle class and those better off on issues that are related to environmental pollution — air, water, waste management, lack of drainage facility and failure to ensure healthy foods and eateries that pose threat to everyday lives, most of which are due to poor infrastructure development and poor market regulations.
- Third, and the most popular needs in public health, are the curative care needs of a population. Provisioning of curative care is the most critical and controversial policy question in public health. The three levels of curative care envisaged are primary, secondary and tertiary.

How have Indian public health policies evolved in recent years?

Shift from National Health Mission's focus on strengthening public healthcare to:

- Emphasis on publicly funded health insurance schemes (PFHI) like PMJAY
- Outsourcing of secondary and tertiary care to private sector

How does the current health insurance scheme (PMJAY) impact healthcare delivery?

- Covers only hospitalization expenses for 50 crore people
- Leaves remaining population vulnerable to high healthcare costs
- Strengthens private healthcare monopoly
- Fails to address primary and preventive healthcare needs

What are the main criticisms of the current approach to public health in India?

- Inadequate focus on social sector, especially public health, in recent budgets → **Inadequate infrastructure** in Public healthcare → Loss of trust on public healthcare
- **Weakening of public health system**, especially secondary and tertiary care
- **Over-reliance on private sector** for healthcare delivery
- Potential **neglect of preventive** and primary care needs
- Inadequate attention to diverse health needs across social groups
- Transformation of primary care centers into Health and Wellness Centers (HWCs) without proper infrastructure or trained personnel
- Renaming of health centers to "Ayushman Arogya Mandir" without clear justification
- Lack of culturally and contextually relevant healthcare delivery

Can you answer the following question?

Evaluate the recent trends in India's public health policies, particularly the shift towards publicly funded health insurance schemes and privatization of healthcare.

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