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Rising Sea-Level, Rising Threats

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Synopsis

Backed by scientific data and evidences,Sea-level Rise (SLR) is no longer an issue of make-belief. Almost all states now agree to the emerging threats to security from climate change, especially risks from sea level rise to global peace and security.

Commentary

SEA-LEVEL Rise (SLR) is a climate-induced and human-driven phenomenon. Growing population, increasing demand for natural resources, and rapid urbanisation are the major factors pushing sea level rise to a risky extreme.

Thermal expansion of water due to global warming remains one of the two main causes of SLR while the other is massive melting of ice sheets and glaciers. Scientists predict that even though the sea level is estimated to rise 11 inches to 38 inches by 2100, a major breakup of the Greenland and West Antarctic ice sheets can easily raise it up to 23 feet, creating a doomsday scenario.

Potential Losers

Low-lying regions around the world will suffer the most. For example, Bangladesh will lose a significant part of its territory. In the extreme case, island states like Maldives and Papua New Guinea will disappear. Among all the regions East Asia, Middle East, and North Africa exhibit the greatest relative impacts.

Coastal areas will be severely affected. The most alarming news is that eight of the 10 mega cities and many financial centres (i.e. New York, London, and Mumbai) in the world are situated in the coastal areas which may be partially or completely lost due to SLR. This could cause global trade and the international financial system to

face significant shocks. Supply chain management will also be adversely affected due to rising water level in port cities like Rotterdam and Shanghai.

Many small island developing states will face existential threat due to the rise in sea-level. Loss of wetland will result in a massive territorial shrink. Even before being submerged, the viability of these states will already be threatened as often sea-level rise makes islands uninhabitable long in advance.

Security Implications

Disputes over maritime boundary are very likely to take place as baselines and shorelines will move from its present longitudes and latitudes. With even the slightest change in lines, the current regime of maritime boundaries based on the United Nations Convention on the Law of the Sea (UNCLOS) will be obliterated. Confusion over coastlines and borderlines will also create disagreement over EEZs and territorial seas and access to ocean resources. These might make inter-state relations tardier and peace more difficult.

Expansion of sea areas in previously habitat areas will displace hundreds of millions of people around the globe. Since 40%-45% of global population lives by the coast, the human loss and displacement is going to be enormous. Intra and inter-state migration will occur on a massive scale which will eventually create an unhealthy distribution of population.

Lack of resources can further cause tension between host communities and the migrants which in extreme cases can even lead to the collapse of states. Regions already facing socio-economic tensions are likely to suffer more due to migration.

Along with the loss of habitat, livelihoods will suffer too. Production of different sorts of crops will be halted and their quality can deteriorate due to salinised water. Hundreds of species of fishes will be lost due to higher ocean temperature, altered depth of water and associated changes in chemistry of water. Similarly, many aquatic animal species will also be lost as the change in sea level will affect their metabolism, functionality, ecosystem, growth rate etc.

Food, Water and Energy Security

Food security will be hampered to a great extent as we are losing agricultural land to rising sea-level. Quality of the remaining agricultural land will also worsen with saline water intrusion. Salt water contamination will make irrigation difficult. Expected production of crops will go down drastically.

A huge amount of rice production is predicted to be lost due to delta areas such as those of the Mekong and Red River being submerged. This food insecurity among people will gradually build up to unstable security situation within and beyond the state.

Water security will similarly be threatened due to hyper-salinisation of water. Ice-melted water will submerge the coastal areas. Different sources of water will be contaminated by salt water. Sweet water will be contaminated by the infusion of salt

water. In absence of drinkable water, excessive pumping of ground water might insert unwanted chemicals like Arsenic which are often very detrimental to human health.

Energy infrastructures are highly vulnerable to the sea-level rise. Nuclear reactors need uninterrupted water supply for cooling down the system which is why they are built near coastlines. Increased water level will flood the nuclear power plants which will affect the functionality of the reactors.

The Fukushima power plant is a prime example, which in 2011's Tsunami was washed away in water and was cut down from electricity supply which eventually prevented its regular function, causing radiation to leak into water and air.

Politico-economic Impact

Destruction of coastal infrastructures will occur due to SLR. Port facilities, rail and road links, transmission facilities etc will be heavily impacted. Capacity of coastal cities and states will decline severely as providing basic services to the population will become more difficult. Lack of services often aggravates the fragility of states.

Higher sea levels have the potential to flood terrestrial habitat. Greater tidal intrusion will change the salinity regime of coastal freshwater. Due to increased depth of the sea, marine life will be exposed to various threats like lack of sunlight, wave energy, and oxygen, which will adversely impact the marine ecosystem and will become an existential threat. Alteration in chemistry of soil caused by saltwater will also reduce the coastal plant life.

Economic impact on tourism sector due to SLR will be devastating. Caribbean nations alone will see 149 multi-million dollar resorts lost to rising sea level. Available high-end beach properties will skyrocket. Huge disparity over the supply and demand of properties will resurface allowing only a small portion of population access to shelter.

All these effects could easily add up to civil unrest and warfare. Multidimensional insecurity of people can make them vulnerable and prone to crimes and violence. Price hikes in the Middle East caused by a draught in Russia had sparked riots in Tunisia, which eventually led to events of the Arab Spring.

Conflicts among nuclear armed states will make the situation worse as seen in the case of India-Pakistan over the Indus water treaty. Weak governance, a common feature among the climate change-affected countries, will aggravate the internal anarchy.

Possible Action Lines

Reversing the process of sea-level rise is not achievable, as we have come very far along the dangerous road of SLR. Some of the impacts of rising water level are inevitable. Hence, rather than focusing on reversing the process, the practical and attainable course of actions will be to mitigate it with the objective of preventing further aggravation.

Through making and implementing effective policies, we can slow down the rise of sea level, if not completely stop it. To check the multidimensional security implications, states and international organisations should come together to map an action plan. Effective implementation of this action plan is crucial, if we want to reduce the deadly impact of sea-level rise.

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