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Climate Change as a Non-Traditional Security Threat: Strategic Challenges for India's National Security

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ABSTRACT

The present study examined the effectiveness of the Translation Method and the Direct Method in developing English writing skill among secondary school students. A quantitative approach employing a quasi- experimental research design was adopted. The study was conducted with a sample of 44 Grade IX students from a government secondary school in South Kolkata. Two intact sections of the class were selected as the control group and the experimental group. The control group was taught through the Translation Method using the mother tongue to teach English, while the experimental group was taught through the Direct Method using the target language as a medium of instruction. An achievement test measuring reading comprehension, grammar, situational writing, and creative writing was administered before and after the intervention. The data were analysed using descriptive statistics, paired-samples *t* tests, and an independent-

samples *t* test. The findings revealed significant improvements in the post-test performance of both groups following intervention. However, students taught through the Translation Method obtained higher post-test scores and demonstrated greater grammatical accuracy, coherence, organisation, and overall writing quality than the students taught through the Direct Method. The findings suggest that although both methods were effective in improving students' English writing skill, the Translation Method was more effective than the Direct Method in developing English writing skill at the secondary level.

1. Introduction

Since the end of the Cold War, the global security landscape has changed a lot, making it necessary to rethink traditional, state-centred security models. The focus has expanded to encompass various Non-Traditional Security (NTS) threats originating from non-military sources, which possess the capacity to destabilise nations and jeopardise the welfare of their populations. Climate change has become one of the most complicated and far-reaching NTS threats in this changing context. It is a strong "threat multiplier" that can make existing social and political divides worse and create new, complicated security problems.

The connection between climatic shifts and large-scale conflict, while a modern security concern, has historical precedents. Some historians believe that the mean annual temperature in Mongolia dropped sharply between 1175 and 1260. This may have caused the Mongol herds to have less grass, which may have led them to expand their territory to gain new lands. The decline of the Harappan Civilisation is also linked to considerable changes in the river courses and a sustained reduction in rainfall, which affected the food production and emptied the cities. Although there is no conclusive evidence but they indicate that environmental and climatic stress can diminish the societies, and in few cases, generate conflict (Gautam, 2009).

India's vulnerability to climate change is not a far-flung probability. It is already visible now. India has a very long coastline susceptible to sea-level rise, Himalayan glaciers feeding its significant rivers, and India also has a huge agricultural sector which heavily depends upon the monsoon. Severe climate changes are intensifying, rainfall patterns are altering, and the combined effect on India's human security, economic stability and social order is serious. What started as an environmental issue has now become a national security issue.

This paper argues that climate change has emerged as a major non-traditional security threat to India, one that requires a reevaluation of strategic doctrine, policy, and military preparedness. To make this point, it first establishes a conceptual framework for evaluating climate change as a security problem, then examines the distinct threats it poses in front of India, including direct strain on armed forces. It concludes with a suggested national response framework and the argument that climate resilience is not voluntary; it is a strategic necessity.

2. Understanding Non-Traditional Security (NTS)

Non-Traditional Security acquired traction in the post-Cold War period, as geopolitical and security analysts started to admit that national security is not only limited to the military domain. (Zomuanthanga & Sailo, 2025). NTS threats emerge from non-military sources, lean to cross borders, and resist entirely military solutions. The category is wide: terrorism, resource scarcity, environmental deterioration (Guha, 2022). Climate change applies here, but with a peculiar quality that makes it apart. It functions as a “threat multiplier” which means it doesn’t undoubtedly produces fresh conflicts so much as aggravate the conditions that produce them. Poverty, fragile governance, and social strains become tough to manage under climate stress. Scarcity of water sharpens issues over shared rivers. Large-scale shift puts pressure on receiving communities in ways that can harden ethnic distribution. The combined effect on water, food, and energy supplies can destroy the primary or basic functioning of communities, and when that occurs, state stability tends to follow (Rashid et al., 2011).

3. The Climate Challenge: Global Trends and the Indian Context

The scientific agreement is not contested: the climate system is warming, and the transitions observed since the 1950s have no proportionate precedent in the modern record (Mizo, 2020). Intergovernmental Panel on Climate Change (IPCC) reports verify the pattern: rising temperatures, declining glaciers, rising sea-level and more harsh weather events (Kumar, 2017).

India's Unique Vulnerability

India is considered "ground zero for climate change" due to a confluence of demographic, geographic, and socio-economic factors. According to the UN Development Program **Multidimensional Poverty Index (MPI)** report (2024)**, India has the largest number of people living in extreme poverty about 234 million out of its 1.4 billion population**; and a heavy dependence on climate-sensitive sectors, India's vulnerability is exceptionally high. The key vulnerabilities are:

The Himalayan Ecosystem: The Himalayas have experienced a significant temperature rise, leading to a declining trend in snowfall and the retreat of glaciers. The Siachen Glacier, for instance, has receded significantly. Since the Himalayan glaciers are the source of Asia's great rivers including the Ganges, Indus, and Brahmaputra and their melting will cause erratic flow patterns, leading to floods in the short term and reduced water availability in the long term.

Extensive Coastline: India has 7,500km of coastline and wide low-lying areas, which makes it profoundly exposed to sea-level rise. Over the last several decades, the increase rate of sea levels has been somewhat faster in the North Indian Ocean (TERI-KAS, 2020). A one-meter sea-level rise will uproot more than 7 million people and deluge nearly 5,764 km² of land in India (Kumar, 2017). The coastal cities like Mumbai and Kolkata, which are densely populated, sit squarely in that exposure and are very vulnerable (Pai, 2008).

Monsoon Dependence: India’s agriculture is massively rely on the seasonal monsoon: both for the majority of its rainfall and for the time that decides planting and harvest cycles. This sector employs a huge amount of the population and is a major contributor to the Indian GDP. Climate change is calculated to make monsoon patterns more abnormal, raising the possibility of droughts and floods in the upcoming years. It is precisely threatening the food security and rural livelihoods of Indian farmers (Kumar, 2017).

4. Analysing the Strategic Challenges to India's National Security

The geophysical consequences of climate change give boost directly to a complicated list of strategic issues which interweave with and deteriorate current security concerns for India. Climate change doesn’t stay limited to the environmental domain; it is compounding India’s security problems both internally and externally.

Impacts on National Security Domains

Resource and Water Security (Hydro-Politics): Water is developing as a flashpoint. Climate-driven stress on transboundary rivers is deteriorating bilateral tension on two different fronts.

With China: China sits upstream on the Brahmaputra and Sutlej, and has been developing dams and infrastructure across the Tibetan plateau. If China chooses to redirect flows unilaterally, especially during drought years, the consequences downstream in India could be severe. Pai (2008) is not exaggerating when he calls this a potential “declaration of water war”.

With Pakistan: The Indus Water Treaty (IWT) has always been contentious. Pakistani strategy analysts have long recognised the water-sharing conditions unfavourable, and rising water stress may give Pakistan

fresh impetus to use its militant networks to threaten or sabotage Indian water infrastructure in Kashmir (Pai, 2008). This treaty sustained three full-scale wars, which is notable. But that persistency didn't insulate it from politics. After the Uri attack of 2016, pressure built in Indian strategic circles to either scrap this treaty or use it as a coercive bargaining chip against Pakistan's backing of terrorism (Mizo, 2020). The dispute finally broke open in April 2025, when the Pahalgam massacre, among the deadliest attacks in the history of Jammu & Kashmir, prompted the Indian government to suspend the IWT. No Indian government had done this ever before. This move demonstrated something that had been building for years: when water scarcity and cross-border terrorism interact, a harmonious water-sharing treaty stops working as a technical agreement and starts working as a pressure point.

With Bangladesh: Sea-level rise and changing river flows in the Ganga-Brahmaputra-Meghna (GBM) delta, a recognised climate-security hotspot, will strain water-sharing agreements and increase cross-border tensions (TERI-KAS, 2020).

Internal Security and Climate-Induced Migration: One of the most serious security issues is mass migration.

International Migration: A one-meter sea-level rise could inundate 17% of Bangladesh, potentially creating up to 40 million "climate refugees". A massive influx of people into India's northeastern states, which have a history of ethno-political conflict related to illegal immigration, could reignite violence and insurgency (TERI-KAS, 2020).

Internal Migration: Domestically, millions of people are already displaced annually by monsoon flooding. This will intensify as droughts, coastal erosion, and floods render more areas uninhabitable, forcing people to move to urban centres. This influx strains urban resources and can lead to inter-group conflicts over jobs, water, and land, creating fertile ground for extremist movements like the Naxalites (TERI-KAS, 2020).

Specific Challenges for the Indian Armed Forces

The Indian military is already perceiving the explicit consequences of climate change, which are posing challenges in operational readiness, infrastructure, and strategic posture.

Increased Operational Strain from HADR: The armed forces are increasingly being deployed for Humanitarian Assistance and Disaster Relief (HADR) missions in response to extreme weather events like the 2013 Uttarakhand floods and the 2015 Chennai floods (TERI-KAS, 2020). While a key function, this

frequent diversion of military assets from their primary war-fighting role places a significant strain on resources, training, and readiness (Jayaram, 2021).

New Challenges in Border Management: Climate change is physically altering the battlefield. The accelerated melting of the Siachen Glacier due to military presence and rising temperatures is forcing the army to "rethink deployment procedures" and is causing more soldier deaths from environmental reasons than armed conflict (TERI-KAS, 2020). Retreating Himalayan glaciers may also destroy natural topography, opening routes along the disputed China border that were earlier impenetrable (Mizo, 2020).

Vulnerability of Critical Infrastructure: The record on coastal and high-altitude military installations is already instructive. The 2004 tsunami wrecked Car Nicobar Air Force Base. A decade later, Cyclone Hudhud caused severe damage to the Eastern Naval Command at Visakhapatnam. Both were climate events, not foe action. Rising sea levels put naval bases at structural threat over time, and severe weather downgrades equipments and cuts off supply chains when they are most needed (Mizo, 2020).

5. Crafting a National Response: A Multi-Pronged Climate Security Strategy

Responding to these challenges means moving past a reactive posture. An entirely military response will not hold because the problem stretches too many realms. What India needs is a whole-of-government resolution, augmented by technological investment, regional cooperation, and diplomacy that engages climate as a security threat rather than an environmental afterthought.

Strategic Policy and Doctrinal Integration: The starting point is formally inserting climate security in India's national strategic framework. The Joint Doctrine of the Indian Armed Forces (2017) acknowledges climate change as a non-traditional security threat, which matters but acknowledgement and operationalisation are different things. Doctrines need to be modified to reflect actual climate challenges, and the roles of different agencies need to be spelled out clearly. That means creating working links between Ministry of Defence, Ministry of External Affairs, Ministry of Home Affairs, the NDMA, and the bodies like ISRO and IMD; institutions that presently perform largely in parallel.

Leveraging Technology for National Resilience: The Indian military has handled this sort of changement earlier. Its role in achieving the Montreal Protocol is the clearest example: the military was given the custody of national banking of Halon, a fire-fighting gas used across aircraft, ships, and tanks, while a joint service committee worked through the process of finding replacements and phasing out its use (Gautam, 2009). The mechanics of that exercise: coordinating across services on a technically complicated environmental accountability are precisely relevant to climate resilience.

Technology is a crucial enabler for building resilience. Despite focusing on any single system, India should leverage a wide range of technologies:

- **Advanced Forecasting and Monitoring**: Investment in climate modelling and AI-assisted prediction for extreme weather conditions is overdue. ISRO's satellite infrastructure is underleveraged for monitoring glacial melt, river flows, and coastal changes, all of which feed into early warning and resource management.
- **Building Resilient Infrastructure**: Coastal defences need reinforcing. Naval and air bases call for upgradation against storm surges. Agriculture and water management systems demand investment that accounts for what the climate will look like in the upcoming twenty years, not what it looked like twenty years ago.
- **Proactive Diplomacy and Regional Cooperation:** In the 21st century, climate change is emerging as a transnational threat, unilateral actions are not enough. Diplomacy becomes a critical point of defence.
- **Hydro-Diplomacy**: India must proactively participate in "hydro-diplomacy" with its neighbouring countries. It ensures a strong push for institutionalised, formal data-sharing arrangements with China on the Brahmaputra. It represents not a good gesture of goodwill, but as a practical buffer against sort of information vacuum that turns water scarcity into a crisis.
- **Regional Security Frameworks**: In the regional forums like SAARC and BIMSTEC, India should position itself to lead on building a mutually shared climate security framework. This will cover disaster response, cross-border migration, and the exchange of scientific temperament (Mizo, 2020). Nations with similar problems and shared vulnerability can come together for cooperation and can build trust for a peaceful regional environment (Manohar Parrikar Institute for Defence Studies and Analyses, 2013; Observer Research Foundation, 2024; The New Indian Express, 2024)

6. Conclusion

Climate change is no longer limited to the periphery of India's security. It escalates competition over resources and deepens internal conflicts. It is also opening new strategic vulnerabilities along borders that were earlier defined by terrain. The stress is already showing in the form of growing pressure of disaster relief operations on the armed forces, and in the actual transformation of high-altitude ground along the Himalayan frontier.

India has been very careful about "securitising" climate change on the global stage, and there are proper reasons for that carefulness: securitisation tends to produce military-first responses that miss the point. But

that concern cannot become an excuse to neglect the security dimensions closer to home. The differentiation worth drawing is not between action and inaction; it is between militarisation and integration. Modernising strategic doctrines, investing in forecasting and climate-resilient infrastructure and developing regional frameworks that treat shared water and disaster risk as security threat rather than diplomatic courtesies because these are not soft measures. They are the architecture of a serious response. India has the institutional reach of all three. The question is whether the policy mechanism moves fast enough to matter.

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