

**VICE ADMIRAL KK NAYYAR FELLOWSHIP CONFERENCE 2023 (KKNFC-23)  
“INDIA’S COASTAL RESILIENCE VIS-À-VIS URBAN AGGLOMERATIONS”**

**SCOPE COMPLEX AUDITORIUM, NEW DELHI,  
22 & 23 FEBRUARY 2023**

**CONCEPT NOTE**

It is an established and well-recognised fact that the world is passing through a climate-crisis of monumental proportions. South Asia in general, and India in particular, is highly vulnerable to an entire range of hydrometeorological hazards that are rapidly rising, both in terms of their intensity and frequency. India’s average temperature, for instance, has risen by around 0.7° C, over the period from 1901 to 2018. Within India’s proximate maritime domain, the situation is even worse. In just the period from 1951 to 2015, Sea Surface Temperature (SST) in respect of the tropical Indian Ocean has risen by 1° C on the average, which is markedly higher than the global average over the same period.

Irrespective of the precise causal-factors, the effects of this rise in temperature are uniformly deleterious. In the proximity of the Indian sub-continent, they include changes in the comparative heating of landmasses and sea areas, with consequent changes in pressure gradients. We are consequently experiencing significant changes in precipitation (especially rainfall) and difficulties in its predictability. On the one hand, we have unexpected droughts, while on the other, there are increasing incidences of uneven, sporadic, but intense rainfall which, far from nourishing the land, simply washes away topsoil thereby reducing agricultural productivity, and produces widespread and non-seasonal flooding. Both these have serious socio-economic and socio-political impacts that are keenly felt along the coast, and particularly in mega urban coastal agglomerations such as Mumbai.

All this is worsened by the increase in the frequency and ferocity but concomitant decrease in the path-predictability of tropical revolving storms (cyclones) and the storm surges that occur in their wake, causing significant loss of land through the sharp increase in coastal erosion. Indian metropolises on the country’s western coast, for example, which had hitherto been accustomed to relatively calm maritime conditions, have been witnessing a sharp surge in extreme cyclonic activity these past few years. High-intensity cyclones such as *Ockhi* (2017), *Vayu* (2019), *Nisarga* (2020), and *Tanktae* (2021), have wreaked year-on-year havoc in India’s coastal areas. Cyclone *Tanktae*, for instance, caused a loss of about Rs 15,000 crore (US\$ 1.93 billion), with the agriculture sector in Gujarat and Maharashtra being the most severely hit. India’s east coast is even worse affected. For instance, Cyclone *Amphan*, which made landfall on the east coast in May of 2020, is notorious for being the world’s costliest natural disaster — with the economic

loss being estimated to be over one lakh crore rupees<sup>1</sup> (US\$ 1.28 trillion!). Given this magnitude of fiscal impact, it is painfully obvious that climate-proofing of coastal cities is a task to which policymakers and planners must bend their efforts with alacrity and sharp focus.

Just a few short decades ago, thermal expansion of the oceans was considered to be the principal contributor of rises in sea level. Today, however, the follow-on effects of the rise in global temperature have wrought a change in this thinking to the point where global sea-level rise is now being principally ascribed to the melting of glaciers across the world and the alarming loss of the vast icesheets of Antarctica and Greenland. Once again, however, irrespective of the cause, sea-level rise is indeed occurring far more rapidly and far more significantly than had earlier been imagined.

Once again, sea level rise has a whole slew of adverse impacts and generates a staggering range of systemic risk, as also follow-on socio-economic and socio-political challenges, especially in countries such as India, which are endeavouring to accelerate their economic development. It is, thus, both ironic and tragic that these adverse impacts are most keenly felt in precisely those nodes that connect the economic and developmental lifelines of trade and commerce — namely, coastal population-centres and entrepôts. Coastal urban agglomerations have long been recognised as vital symbols of economic progress and innovation, and, since they are melting pots of diverse cultures, socio-political and socio-economic disturbances or turmoil have far-reaching and enduring impacts.

In common with much of the global South, India must necessarily balance sustainability against the imperatives of economic development in a far more geographically-interdependent — if not globalised — world. There is, encouraging evidence that India is, indeed, recognising the magnitude of this threat to its critical maritime infrastructure, and is taking significant steps towards building resilient development pathways through efforts such as the *Smart City Mission* (2015), the *Atal Mission for Rejuvenation and Urban Transformation (AMRUT)*, the *Coalition for Disaster Resilient Infrastructure (CDRI)*<sup>2</sup> — an international coalition of countries, United Nations (UN) agencies, multilateral development banks, the private sector, and academic institutions — established by PM Narendra Modi in 2019, and the recently launched *Infrastructure for the Resilient Island States (IRIS)*, a dedicated initiative that was co-created by the CDRI and representatives of Small Island Developing States (SIDS) at the COP 26. Prime Minister Narendra Modi's sustained push for accelerating India's transition from a 'brown' model of economic development to one that fully embraces the several facets and nuances of a resilient and sustainable 'blue' economy is evidenced in initiatives such as the country's maritime policy (encapsulated in the acronym SAGAR), the SAGARMALA mega-project that has now been subsumed into the *Maritime India Vision 2030*, and the *Pradhan Mantri Matsya Sampada Yojana* (2020). All these are manifestations of a renewed focus upon the transformation of India's coastal cities and critical maritime infrastructure such as ports. These encouraging developments

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<sup>1</sup> "Global Catastrophe Recap: First Half of 2020" AON (2020)

[http://thoughtleadership.aon.com/documents/20200722\\_analytics-if-july-global-recap.pdf](http://thoughtleadership.aon.com/documents/20200722_analytics-if-july-global-recap.pdf)

<sup>2</sup> The National Maritime Foundation was one of the recipients of the inaugural international fellowship that was started under the banner of CDRI in 2021, for which the NMF is currently carrying out research on the subjects of climate resilience and its impacts on India's Port infrastructure.

notwithstanding, a holistic and dynamic strategy — marked by clarity of thought and specificity of action — to mitigate (where possible) and adapt-to (where mitigation is not possible or insufficient) the adverse impacts of climate-change, is nevertheless critical if India is to realise its dream of becoming a leading ‘blue economy’ in a largely postmodern world.

Following the Paris climate accord of 2015, the world is witnessing an upsurge in the participation of local governments and cities as main stakeholders in climate action. Initiatives such as “C40”, the “*Urban Climate Action Programme*” (UCAP), and “*100 Resilient Cities*”, have proven to be successful in raising awareness, climate-finance, and stakeholder-participation amongst coastal cities around the world. Several coastal cities of India, too, are beginning to realise that the loss and damage that would accrue from a business-as-usual approach are so large as to be politically and financially unacceptable. Three Indian coastal cities — Mumbai, Chennai, and Kolkata — are currently part of the C40 initiative, and Mumbai has gone a step further with its “*Mumbai Climate Action Plan*” (MCAP). However, for coastal cities in the developing world, raising climate finance and rapid urban infrastructural transformations will be critical and unavoidable challenges going forth, which they must pursue with an active political and economic will. As if all these were not challenging enough, India’s geographical location dictates that climate-change related issues will also acquire increasing geopolitical and hence geostrategic salience.

As part of its own ongoing contribution to India’s quest for economically and politically viable policy-relevant solutions, the National Maritime Foundation has made the “**India’s Coastal Resilience Vis-à-vis Urban Agglomerations**” the central theme of its inaugural **Vice Admiral KK Nayyar Fellowship Conference (KKNFC-2023)**, which is scheduled to be held in physical format, at the Scope Convention Centre Auditorium (Lodhi Road, New Delhi), **on 22 and 23 February 2023**.