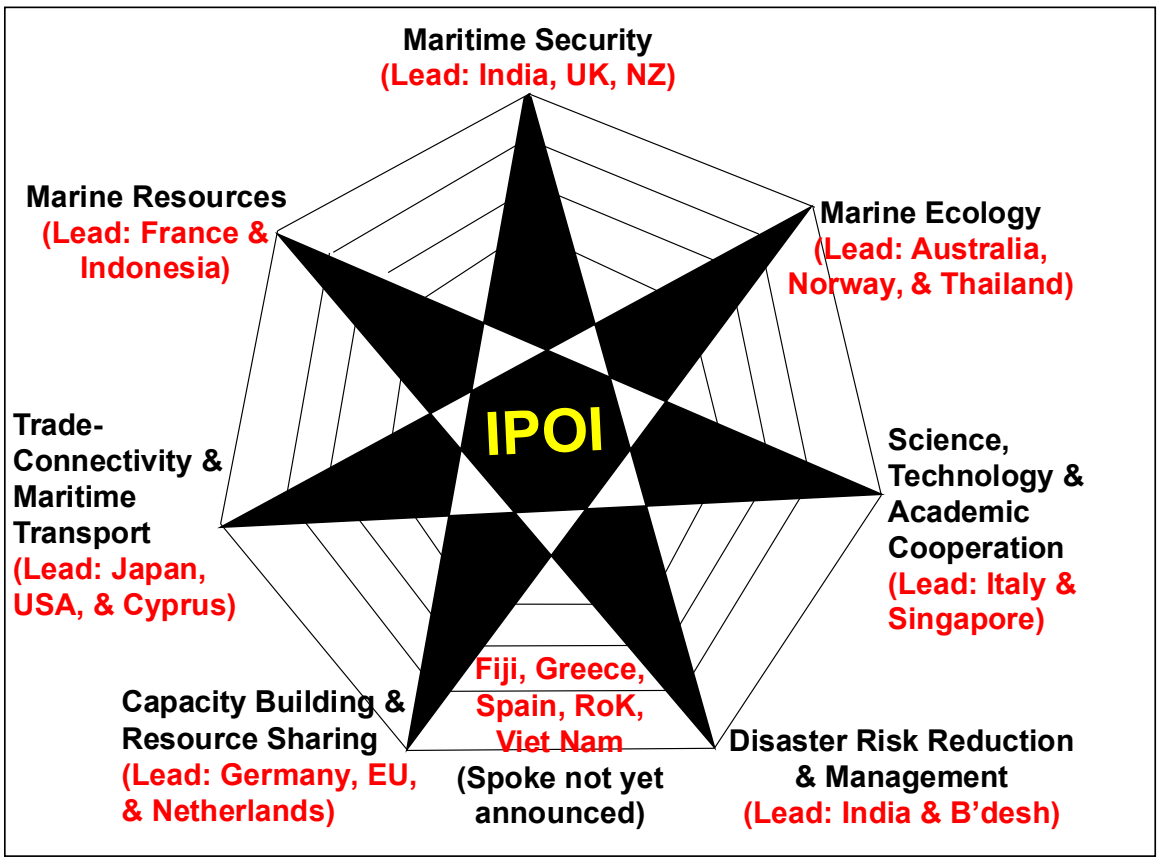
2026 EDITION OF THE INDO-PACIFIC REGIONAL DIALOGUE (IPRD-2026)
Science, Technology and Academic Cooperation in the Indo-Pacific:

CONCEPT NOTE

The **Indo-Pacific Regional Dialogue (IPRD)** is the Indian Navy's international, apex-level conference, and is the principal manifestation of the Navy's annual outreach at the strategic level. Each successive edition of the IPRD seeks to focus upon on or more of the seven maritime lines of thrust of the **"Indo-Pacific Oceans Initiative" (IPOI)**, which had been launched by India's Prime Minister, Shri Narendra Modi, on 04 November 2019, at the 14th East Asia Summit in Bangkok. Importantly, the IPOI provides *first-order-specificity* to India's maritime policy, which is encapsulated in the acronym **MAHASAGAR** (standing for *"Mutual And Holistic Advancement for Security and Growth Across Regions"*). Through three-days of intensive discussions-with and presentations-from Hon'ble maritime experts from across the world, each successive edition of the IPRD provides a slew of specific recommendations at the governmental level as well as at executive and functional ones.

Over the seven years that have elapsed since its initial enunciation, the IPOI has gained considerable international traction. Given that the themes addressed by the IPOI are inextricably interconnected to one another, the initiative is depicted (in **Figure 1**) as an intricate multidisciplinary web with seven spokes. Figure 1 also indicates nations that have stepped-up to singly or jointly lead one or more of the maritime lines of thrust that each spoke represents.



In the contemporary, fast-paced geopolitical developments that increasingly characterise the Indo-Pacific, *Science, Technology and Academic Cooperation* is arguably the most promising area of regional cooperation within the Indo-Pacific and certainly the most pressing one. *Science, Technology and Academic Cooperation within the Indo-Pacific* has accordingly been selected as the overarching theme of this year's Indo-Pacific Regional Dialogue — **IPRD-2026**.

Even while the maritime domain is becoming increasingly technology-intensive, it is important to avoid a narrowly focused regional approach that concentrates cooperative endeavour solely upon STEM (Science, Technology, Engineering, and Mathematics) but instead, to also incorporate the social sciences, the life sciences, and the humanities (STEAM). The deployment of autonomous systems (including lethal autonomous ones) is no longer some futuristic concept and neither the technology nor its ethical considerations can be ignored in determining optimal measures for international cooperation and collaboration. Likewise, cooperation in the most beneficial utilisation and exploitation of artificial intelligence (AI) for knowledge management across a wide range of applications, including resource-mapping requires inputs that transcend the physical sciences. The harnessing of quantum sensing and quantum navigation, especially for underwater surveillance, and the application of big-data platforms to oceanographic modelling are reshaping maritime commerce, scientific enquiry, and naval operations, alike. Yet, these niche technologies require institutional knowledge and human capital to develop, operate, and adapt them. All these are spread extremely unevenly across the Indo-Pacific. Since regional security and growth is the only pathway to prosperity and wellbeing at the national level, regional cooperation and collaboration is essential and the most appropriate means and methods to achieve these must be deliberated and identified.

Although the field of cooperative scientific endeavour is vast, IPRD-2026 will, over its five professional thematic-sessions spread over three days, address some of the more pressing elements:

- **Oceanographic Science and Climate Resilience**. The Indo-Pacific is on the frontline of climate-change disruptions such as rising sea levels, ocean acidification, extreme weather events, and degradation of oceanic carbon sequestration systems. The need for regional resilience is self-evident. Cooperation in oceanographic science, including the sharing of data collected by buoys, research vessels, and satellite platforms, is indispensable for understanding these phenomena, modelling their trajectories, and formulating evidence-based policy responses. As a specific deliverable, the assembled subject-matter experts in IPRD-2026 will identify institutional technological cooperative mechanisms that would guide governments, maritime-security agencies, academia, and non-governmental institutions alike.

- **Transformative Maritime Technologies and Dual-Use Implications**. The region faces twin imperatives of decarbonisation and digitalisation. The transition to zero or near-zero emission fuels demands cross-national research partnerships, harmonisation of technical standards, and shared development of port infrastructure. AI-enabled logistics, automated port operations, and digital shipping corridors hold the promise of dramatically enhancing regional connectivity. Beyond these, a rapidly expanding array of dual-use capabilities such

as autonomous systems, quantum sensing, advanced materials, and cyber technologies, pose governance challenges that no single State can address while acting in splendid isolation. IPRD-2026 will provide specific recommendations on how collaborative R&D and green/ digital shipping corridor frameworks can accelerate clean maritime energy adoption and determine how regional academic partnerships can advance the responsible governance of dual-use technologies.

- **Collaborative Approaches to Ocean Governance and Maritime Resilience**. Mapping of the vast swaths of the Indo-Pacific seabed is a prerequisite for cable and pipeline laying, deep-sea ecosystem science, assessment of availability of critical minerals and hydrothermal vent deposits. Marine biotechnology, with applications spanning pharmaceuticals, biomanufacturing, food systems, and environmental remediation, is poised to become among the most consequential frontiers of how states pursue the blueing of their economy. The provisions of the recently concluded Biodiversity Beyond National Jurisdiction (BBNJ) Agreement provide a normative framework, which needs to be translated into operational research partnerships and equitable mechanisms, which requires deep academic and scientific collaboration. IPRD-2026 will assess the state of regional cooperation in deep-ocean science and biotechnology and map pathways through joint research, shared data repositories, and capacity-building programmes.

- **Maritime Situational Awareness and Protection of Critical Maritime Infrastructure**. MSA from the seabed to outer space is foundational to holistic maritime security and is a quintessentially national endeavour. However, the movement from MSA to MDA requires discrete MSA knowledge to be exchanged and integrated across multiple geographies. This demands serious cooperation by way of information-exchange. Yet, region-wide near-real-time MDA remains elusive, constrained by technological limitations, information-sharing barriers, and disparate institutional frameworks. Although Underwater Situational/ Domain Awareness (US/DA) is a subset of MSA/MDA the technological challenges are so grave that US/DA is frequently considered (howsoever incorrectly) to be a process that is independent of MSA/MDA. Given the rising threats to underwater infrastructure (not limited to undersea data cables alone), there is a clear need to share best practices and establish cooperative structures across academia and across naval scientific and operational structures as well. IPRD-2026 will examine the scientific and technological prerequisites for genuinely interoperable regional MDA, with particular attention to space-based assets, AI-enabled data fusion, UDA, and will make specific recommendations on how academic partnerships can accelerate the development of common solutions.

- **Academic Networks, Research, and Human Capital Development**: Sustainable management and harnessing of ocean resources requires technological organisational infrastructure as well as an equally robust one encompassing the life sciences, the social sciences, and the even arts. This calls for the creation and maintenance of a regional ecosystem of academic institutions, research centres, maritime universities, professional training establishments, etc. It also calls for an enduring network of thinktanks, academia, and government structures. IPRD-2026 will determine how best existing regional

academic networks, including those associated, *inter alia,* with IORA, ASEAN, FIPIC etc, might be strengthened and which new networks and frameworks should be established for academic exchange, outcome driven joint research, and technology-transfer partnerships to produce the competent human capital in the region.

Through the aforementioned specific deliverables, IPRD-2026 would provide a substantive and forward-looking agenda through which the world's leading academicians, practitioners, scientists, technologists, strategists, and policymakers can collectively address this facet of the IPOI. In keeping with the tradition firmly established by previous editions, deliberations of this international conference will concentrate upon the identification of specific, actionable measures at national, sub-regional, and pan-regional levels, which could be thereafter addressed through extant mechanisms for bilateral, trilateral, and plurilateral structures designed to promote comity, cooperation, and collaboration, across the Indo-Pacific.