



Government of India

INDIA'S ARCTIC POLICY

BUILDING A PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

2022

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INDIA AND THE ARCTIC

Building a Partnership for Sustainable Development

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INDIA'S ARCTIC MISSION



To enhance India's cooperation with the Arctic region.

To harmonise polar research with the third pole—the Himalayas.

To contribute to efforts to enhance humankind's understanding of the Arctic region.

To strengthen international efforts on combating climate change and protection of the environment

To advance the study and understanding of the Arctic within India.

1.0 INTRODUCTION

1.1 Arctic - Significance For India

THE Arctic is commonly understood to refer to the region above the Arctic Circle, north of latitude 66° 34' N, which includes the Arctic Ocean with the North Pole at its centre. Eight Arctic States—Canada, Kingdom of Denmark, Finland, Iceland, Norway, Russia, Sweden, and USA form the Arctic Council. The Arctic is home to almost four million inhabitants, of which approximately one-tenth are considered as indigenous people.

1.1.1 The Arctic Ocean and its surrounding landmass has been a topic of immense interest and a high-priority area of research among the global scientific fraternity as well as of importance to policy makers. The Arctic influences atmospheric, oceanographic and biogeochemical cycles of the earth's ecosystem.

1.1.2 The vulnerability of the Arctic to unprecedented changes in the climate is manifested by the loss of sea ice, ice caps, and warming of the ocean and atmosphere. It will lead to lowering of salinity levels, rising temperature differential between land and oceans in the tropical regions, drying of subtropical areas and increase in precipitation at higher latitudes.

1.1.3 India is particularly impacted due to the likely effect of these changes on critical aspects of national development such as economic security, water security and sustainability, weather conditions and monsoon patterns, coastal erosion and glacial melting. Indian agriculture is heavily dependent on the monsoons as it receives around seventy per cent of its annual rainfall during this season. The yield of staple summer crops such as rice, pulses and soybeans, which account for almost fifty per cent of India's food output, are dependent upon the precipitation during this period. A good monsoon is critical for India's food security and the wellbeing of its vast rural sector. Changes in the Arctic, especially melting Arctic ice, can be highly disruptive for national development, sustainability of over 1,300 island territories and maritime features, and welfare of 1.3 billion Indians.

1.1.4 The Covid-19 pandemic has exposed the scale of disruption that can be caused by pathogens. The thawing of permafrost soil as a result of global warming could also potentially release viruses and bacteria that have been dormant for thousands of years, thereby increasing the probability of pandemics.

1.1.5 There are several synergies between polar studies and the study of the Himalayas. India's vast experience in scientific research in Antarctica and the third pole – the Himalayas, which are endowed with the largest freshwater reserves in the world outside the geographic poles, will help India's scientific community to better understand the Arctic region.

1.1.6 Melting Arctic ice also opens up new opportunities like energy exploration, mining, food security, and shipping. India can contribute in ensuring that as the Arctic becomes more accessible, the harnessing of its resources is done sustainably and in consonance with international best practices.



Melt ponds on Arctic sea ice

1.2 India And The Arctic – A History Of Cooperation



Ny-Ålesund – a research town in Svalbard, housing research stations of around 11 countries

History of India's Arctic Research



1.2.1 India's engagement with the Arctic started in February 1920, when it signed the Svalbard Treaty in Paris. India launched its first scientific expedition to the Arctic in 2007 to initiate a series of baseline measurements in biological sciences, ocean and atmospheric sciences and glaciology. Subsequently, the Indian research station *Himadri* at the international Arctic research base at Ny-Ålesund in Spitsbergen, Svalbard was dedicated to the nation in 2008.

1.2.2 IndArc, India's first multi-sensor moored observatory was deployed in Kongsfjorden in 2014. In 2016, India's northernmost atmospheric laboratory was established at Gruvebadet. The laboratory is equipped with several instruments that can study clouds, precipitation, long-range pollutants, and other background atmospheric parameters.

Indian researchers are also monitoring arctic glaciers for their mass balance and comparing them with glaciers in the Himalayan region. All these bear testimony to the technical competence and commitment of India's scientists towards understanding the Arctic.

1.2.3 India's association with the Arctic is part of its interlinked polar programme which includes activities in the Arctic, Antarctic, and the Himalayas. Its polar research experience began in 1981 when the first scientific expedition to Antarctica was undertaken. India's scientific engagement with the Antarctic has grown manifold during the last four decades. India is a part of the Antarctic Treaty System, Scientific Committee on Antarctic Research, Council of Managers of National Antarctic Programs and Commission for the Conservation of Antarctic Marine Living Resources.

1.2.4 In the Arctic, India is a member of the Ny- Ålesund Science Managers Committee, the International Arctic Science Committee, University of Arctic and Asian Forum for Polar Sciences. India plays an important role in all international issues and observations concerning the Arctic. India is determined to scale up its Arctic engagement to even higher levels.

1.2.5 India's focus on cryospheric research, or the study of permafrost, snow and ice, has assisted in increasing the understanding of the Arctic. India has also been actively involved in studies related to the Arctic oceanography, atmosphere, pollution and microbiology. Over twenty-five Institutes and Universities are currently involved in Arctic research in India. About a hundred peer-reviewed papers have been published on Arctic issues since 2007.





India's Arctic station *Himadri*

1.2.6 India's Arctic station *Himadri* is presently manned for about 180 days a year. Since its establishment, over three hundred Indian researchers have worked in the station. India has sent thirteen expeditions to the Arctic since 2007 and runs twenty-three active projects. With participation in the Svalbard coastal cruise and in several other international expeditions, India's engagement in the Arctic has significantly risen in recent times.

1.2.7 Since becoming an Observer nation in the Arctic Council in 2013, India has been actively participating in meetings of Senior Arctic Officials and contributing to the six Working Groups of the Arctic Council. India has also had sustained engagement with the Arctic Energy Summit, Arctic Science Ministerial and meetings of Task Forces.

1.3 Government Of India And The Arctic

1.3.1 The National Centre for Polar and Ocean Research (NCPOR), Ministry of Earth Sciences, Government of India, is the nodal agency for India's Polar research programme, which includes Arctic studies. The Ministry of External Affairs provides the external interface to the Arctic Council. Several other Ministries and Institutes are also involved in Arctic activities and are poised to deepen their engagement in the future. These include the Ministry of Environment, Forests and Climate Change, Ministry of Science and Technology, Department of Space, Ministry of Petroleum and Natural Gas, Ministry of Ports, Shipping and Waterways, Ministry of Mines, Department of Telecommunications, Ministry of Commerce and Industry, Ministry of Agriculture and Farmers Welfare, Ministry of Fisheries, Animal Husbandry and Dairying, Ministry of New and Renewable Energy, Department of Biotechnology and Council of Scientific and Industrial Research.



1.4 Pillars Of The Policy

INDIA'S ARCTIC POLICY RESTS ON SIX PILLARS

01 Science and Research

02 Climate and Environmental Protection

03 Economic and Human Development

04 Transportation and Connectivity

05 Governance and International Cooperation

06 National Capacity Building

2.0 SCIENCE AND RESEARCH

2.1 Science

2.1.1 As a country that has been involved in scientific research in the Arctic, Antarctic and the Himalayas for several decades, India has much to contribute to the scientific study and understanding of the Arctic. India will further strengthen its capabilities in the area of scientific research and build partnerships and bridges of cooperation with research institutions across the globe. It will actively participate in global research projects, science-policy dialogues and decision-making processes.

Objectives

2.1.2 Strengthen the existing research base at *Himadri* in Ny-Ålesund, Svalbard with enhanced observations and diverse instrumentation, maintain year-round presence and establish additional research stations in the Arctic.

2.1.3 Align Indian research activities with the Svalbard Integrated Arctic Earth Observing System and Sustaining Arctic Observation Networks, a joint initiative of the Arctic Council and the International Arctic Science Committee.

2.1.4 Encourage research to align with international Arctic priorities in the arena of socio-economic, political, anthropologic, ethnographic and traditional knowledge.

2.1.5 Acquire a dedicated Ice-class Polar Research Vessel and build indigenous capabilities for construction of such vessels.

2.1.6 Channelise and harness existing expertise from polar research in disciplines such as atmospheric and ocean science, glaciology, marine ecosystems research including fisheries, geology and geophysics, geoengineering, polar infrastructure, cold biology, ecology, biodiversity and microbial diversity studies for advancement of Arctic studies.

2.1.7 Participate in the Arctic Spatial Data Infrastructure Cooperative Framework for accessing and contributing data to the Arctic Spatial Data Infrastructure.

2.1.8 Set up dedicated institutional funding support for Arctic research at the national level. Create funding channels for international collaborations and private-public sector joint projects.

- 2.1.9** Develop bilateral and multilateral projects with Arctic nations and other partners under various Arctic fora.
- 2.1.10** Increase participation in the scientific activities of Arctic Council's Working Groups and Task Forces. Collaborate in circumpolar projects of the Council.
- 2.1.11** As a party to the Convention on the Conservation of Migratory Species of Wild Animals, India will work with Arctic nations in research and conservation of Arctic biodiversity including monitoring and surveillance of avian diseases and their emerging pathways.
- 2.1.12** Expand cooperation with international research institutions working in the Arctic. This will involve increased participation in multinational projects and in scientific-policy events.
- 2.1.13** Actively participate in the International Arctic Science Committee, Ny-Alesund Science Managers Committee, Svalbard Integrated Earth Observing System, the University of the Arctic, Arctic Circle Assembly, Arctic Frontiers, Arctic Science Summit Forum initiatives and encourage hosting of Arctic-related events in India.



Atmospheric instruments installed at the Gruvabadet Atmospheric Laboratory, Ny-Ålesund, Svalbard operating round the year

2.2 Space Technology

2.2.1 India has one of the most highly developed space programmes in the world. This is poised for rapid expansion following the reforms introduced in the space sector in 2020. Indian Space Research Organisation operates a vast constellation of satellites. Among these, the radar imaging earth observation RISAT series of satellites can be deployed for the study of the Arctic region. Additionally, ISRO's optical, high resolution and hyper spectral imaging capabilities can also be used for assisting in the development of the Arctic region.

2.2.2 India's Regional Navigation Satellite System (IRNSS) has been accepted by the International Maritime Organisation as a component of the World-Wide Radio Navigation System. The IRNSS system is also available for assisting in the safety of maritime navigation in the Arctic.

2.2.3 The NASA-ISRO SAR (NISAR) mission will launch its first satellite in 2023. It will measure the Earth's changing ecosystems, dynamic surfaces, and ice masses. This will, *inter alia*, provide information about biomass, natural hazards, sea level rise and groundwater. NISAR's data will help better understand the causes and consequences of land surface changes and the effects and pace of climate change. This will enable better management of natural resources and hazards globally, including in the Arctic.

2.2.4 The Arctic is characterised by low digital connectivity. India's expertise in providing effective satellite-enabled communication and digital connectivity in remote areas can potentially fill these gaps.

Objectives

2.2.5 Expand remote sensing capability to the Arctic and engage with Arctic nations for mutually advantageous sharing of India's RESOURCESAT data for land and water management.

2.2.6 Develop facilities for establishing services in the Arctic related to telecommunications and connectivity, maritime safety and navigation, search and rescue, hydrographic surveys, climate modelling, environmental monitoring and surveillance, mapping and sustainable management of marine resources.

2.2.7 Establish satellite ground stations in the Arctic for optimal exploitation of Indian satellites placed in polar orbits.

3.0 CLIMATE AND ENVIRONMENTAL PROTECTION

3.0.1 Climate change is an urgent and an existential global challenge. As a party to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, as well as related international treaties such as the Convention on Biological Diversity (CBD) and the International Convention for the Prevention of Pollution from Ships (MARPOL), India is at the centre of global efforts to fight climate change. It is one of the few countries in the world which is on track to exceed its commitments and the targets from the Paris Agreement.

3.0.2 Climate change is a critical dimension of India's scientific research in the Arctic. Studying the impact of climate change in the Arctic can improve response mechanisms in other parts of the globe. The atmosphere is warming faster in the Arctic, whereas the ocean is warming faster in the Indian Ocean. It is, therefore, imperative to understand causative mechanisms of such warming and predict outcomes. Linkages between glaciers in the Arctic and the Himalayas are well documented in IPCC's Special Report on the Ocean and Cryosphere (2019).

Objectives

3.0.3 Enhance the quality of India's engagement with the Arctic region on fulfilling UN Sustainable Development Goals (SDGs).

3.0.4 Engage with partners to improve Earth System modelling to support weather and climate predictions of the globe.

3.0.5 Participate in research on ecosystem values, marine protected areas and traditional knowledge systems to preserve Arctic biodiversity and microbial diversity.

3.0.6 Contribute towards environmental management in the Arctic—methane emissions from anthropogenic and permafrost sources, black carbon emission, micro-plastics in the ocean, marine litter, adverse effects on marine mammals, and more. Collaborate with international partners and fora such as the Arctic Council's Short-Lived Climate Pollutants Expert Group.

3.0.7 Engage with the Emergency Preparedness, Prevention and Response Working Group of the Arctic Council to contribute towards environmental emergencies, search and rescue, natural and manmade disasters and accidents in the Arctic.

3.0.8 Engage with the Arctic Council Working Groups – The Conservation of Arctic Flora and Fauna and the Protection of Arctic Marine Environment and promote exchange of knowledge, nature-based solutions and circular economy.

3.0.9 Promote the use of high environmental standards by Indian enterprises while engaging in scientific and economic activities in the region.



Migratory birds in Svalbard

4.0 ECONOMIC AND HUMAN DEVELOPMENT

4.0.1 The Arctic represents a mix of opportunities and challenges. While abundant unexploited living and non-living resources coupled with shorter transit routes represent opportunities, the adverse impacts of increased economic activity pose a danger to the fragile environment. Economic activity in the Arctic region must rest on the creation of robust and effective mechanisms that promote responsible business activities based on the three pillars of sustainable development—environmental, economic and social.

4.0.2 India seeks to engage in economic cooperation in a manner that is sustainable and is of value to the Arctic residents, including indigenous communities. The Arctic offers opportunities in different sectors where Indian enterprises can be involved, become part of international commerce, promote traditional indigenous and local knowledge and best practices.

4.1 Energy, Mineral And Other Resources

4.1.1 India's approach to the economic development of the Arctic region is guided by the United Nations Sustainable Development Goals. In accordance with these goals, India supports sustainable business development in the Arctic as outlined by the Arctic Economic Council.

4.1.2 The Arctic region constitutes the largest unexplored prospective area for hydrocarbons remaining on Earth. The region also contains reserves of mineral deposits—copper, phosphorus, niobium, platinum-group elements and rare earths. India could assist Arctic States in the conduct of surveys to assess their full potential. Environmental and social impact assessments due to increased human activity also need to be undertaken on a regular basis.

4.1.3 Renewable energy (hydroelectricity, bioenergy, wind power, solar, geothermal, and ocean energy) and microgrids play a critical role in Arctic and sub-Arctic regions as they are remote and sparsely populated. From geothermal energy in Iceland, to the TaziTwé water diversion hydroelectric project in Canada, the potential for exploiting renewables to power the Arctic is enormous.

4.1.4 India seeks to collaborate with Arctic States to strengthen partnerships in sustainable living and non-living resource exploration in the Arctic. Opportunities need to be mapped and potential projects for joint explorations identified.

Objectives

- 4.1.5** Explore opportunities for responsible exploration of natural resources and minerals in the Arctic.
- 4.1.6** Pursue collaboration with Arctic States, Observers and other economic actors for mutually beneficial and sustainable economic cooperation and investment.
- 4.1.7** Establish digital partnerships with Arctic nations for promoting e-commerce in the region.
- 4.1.8** Identify opportunities for investment in Arctic infrastructure in areas such as offshore exploration/mining, ports, railways, Information Communication Technology (ICT) and airports. Encourage participation by Indian public and private sector entities with expertise in these sectors.
- 4.1.9** Encourage India's chambers of industry and commerce to enhance private investment in the Arctic, including through public-private partnerships. Encourage Indian companies to obtain membership of the AEC and engage with the five Working Groups-Responsible Resource Development; Maritime Transportation; Connectivity; Investment and Infrastructure; and Blue Economy.
- 4.1.10** Explore partnership opportunities for off-grid renewable energy and bioenergy and promotion of clean technologies
- 4.1.11** Develop fail-safe seed storage facilities in cryospheric regions.



4.2 Human Development

4.2.1 Specialised cultures and traditional livelihoods of the Arctic's indigenous peoples are being inexorably impacted by climate change as well as economic development and improved connectivity. This is similar to the socio-ecological-economic predicament of the Himalayan peoples. India has substantial expertise in meeting these challenges and is uniquely placed to make a positive contribution in collaborating with Arctic States to assist their indigenous communities to cope with similar challenges.

4.2.2 India has considerable experience in the building of robust low-cost social networks using digitisation and innovations that provide services ranging from education, food supply to health systems. This expertise can be shared with the Arctic States.

4.2.3 India's rising purchasing power is contributing to growth in consumption within and outside the country. There is a steady rise in outbound tourist flows, contributing to global earnings and helping local communities. India supports the Arctic Marine Tourism Project best practice guidelines that seek to promote Arctic marine tourism in a responsible, safe and environmentally sustainable way.

Objectives

4.2.4 Share expertise in the governance and welfare of indigenous and other communities with Arctic States.

4.2.5 Encourage Indian participation in sustainable tourism in the Arctic.

4.2.6 As the pharmacy of the world, provide healthcare services and technological solutions (telemedicine, robotics, nanotechnology, biotechnology) in the Arctic. Explore collaboration in traditional systems of medicine including Ayurveda, Sidha and Unani.

4.2.7 Undertake cultural and educational exchanges between the indigenous communities of the glacial regions of the Himalayas and the Arctic.

5.0 TRANSPORTATION AND CONNECTIVITY

5.0.1 Ice-free conditions in the Arctic are resulting in the opening of new shipping routes which could potentially reshape global trade. Traffic, especially through the Northern Sea Route, is rising exponentially and is projected to rise to 80 million tons by 2024. Arctic navigation needs specific hydrographic and meteorological data, communication coverage, seasonal mapping of ice-free channels, ships of Ice-class standards and trained polar shipping crewing in accordance with the Polar Code.

5.0.2 India ranks third in the list of seafarer supplying nations catering to almost ten per cent of global demand. India's maritime human resources could contribute towards meeting the growing requirements of the Arctic.

5.0.3 India also has a well-developed hydrographic capacity that could assist in the survey and mapping of Arctic routes. India is a member of the Hydrographic Committee on Antarctica and has co-produced the International Chart of Antarctic Waters in cooperation with the Russian Federation.

5.0.4 India also seeks to participate in the environmental monitoring study to evaluate the predicted emissions of Polar Class ships likely to traverse this route in future. The impact on ambient air quality by Black Carbon (BC), Nitrogen Oxides (NO_x) and Sulphur Oxides (SO_x) needs to be assessed to save the pristine Arctic environment from increasing human-related activities.

Objectives

5.0.5 Participate in environmental monitoring and regulation, collection of hydrographic and oceanographic data, creation of maritime safety facilities (e.g. buoyage, ship reporting systems) and satellite coverage of vessels operating in the region.

5.0.6 Collaborate in the field of ship building with partners who have expertise in building Ice-class vessels suitable for polar operations and exchange experience on adoption of sustainable shipping technology in consonance with IMO regulations and guidelines.

5.0.7 Promote opportunities for Indian seafarers to crew ships engaged in Arctic transits.

5.0.8 Work towards the linking of International North-South Transport Corridor with the Unified Deep-Water System and its further extension to the Arctic. North-South connectivity may result in lowering shipping costs and overall development of the hinterland and of indigenous communities, more than East-West connectivity.



Indian scientists taking hydrographic measurements in Kongsfjorden, Svalbard

6.0 GOVERNANCE AND INTERNATIONAL COOPERATION

6.0.1 The Arctic region includes nation states with respective sovereign jurisdictions as well as areas beyond national jurisdiction. The region is governed by national domestic laws, bilateral agreements, global treaties and conventions and customary laws for the indigenous peoples.

6.0.2 The Arctic Council is the primary high-level intergovernmental forum for Arctic cooperation set up with the twin-mandate of environmental protection and sustainable development. It comprises member states, permanent participants and observers. It has six Working Groups which oversee voluntarily funded projects. In addition, there are other independent forums focused on specific issues such as the Nordic Defence Cooperation, Arctic Coast Guard Forum and Offshore Regulators Forum.

6.0.3 The Arctic Economic Council is an independent forum that facilitates business-to-business activities. Like the Arctic Council, it has five Working Groups that support Sustainable Development Goals and houses the Arctic Investment Protocol.

6.0.4 Other international frameworks of relevance include the United Nations Convention on the Law of the Sea (UNCLOS), international environmental treaties, oil and gas liability regimes and international human rights instruments.

6.0.5 At the regional level, significant instruments include the Svalbard Treaty, Agreement on the Conservation of Polar Bears, Agreement on Cooperation on Aeronautical and Maritime Search and Rescue, Agreement on Cooperation on Marine Oil Pollution Preparedness and Response and Agreement on Enhancing International Arctic Scientific Cooperation. There are also sector-specific legal instruments and regimes such as the Central Arctic Ocean Fisheries Agreement, Arctic Council's Oil and Gas Liability Guidelines and the Arctic Investment Protocol.

6.0.6 The third tier of Arctic governance consists of legislation at the national and sub-national levels. Some of these, such as the Canadian and Russian domestic laws that draw authority from Article 234 of UNCLOS, also affect international shipping and good order in the Arctic region. Sub-national laws specific to Canada, Greenland (Kingdom of Denmark), Alaska (USA) and Russia too are in use. In addition, regional organisations such as the Arctic Council, Barents Euro Arctic Council, Nordic Council, and regional fisheries organisations regulate activities in parts of the region largely through consensus.

6.0.7 India has ratified almost all international treaties and is a member of international organisations that are relevant to the Arctic.

Objectives

- 6.0.8** Promote security and stability in the Arctic region in accordance with international treaties and covenants.
- 6.0.9** Pursue international cooperation and partnerships with all stakeholders in the Arctic region.
- 6.0.10** Uphold international law and in particular UNCLOS, including the rights and freedoms contained therein.
- 6.0.11** Actively participate in international climate change and environmental treaty frameworks relating to the Arctic.
- 6.0.12** Enhance participation in organizations relevant to the region in which India is a member, such as the International Maritime Organisation and the International Hydrographic Organisation.
- 6.0.13** Develop greater understanding of Arctic-related national and sub-national legislation.
- 6.0.14** Promote inter-governmental and other exchanges with Arctic nations and expert bodies and organisations.



7.0 NATIONAL CAPACITY BUILDING

7.0.1 As new opportunities open up in the Arctic, India will enhance its capabilities and augment its capacities. From science and exploration to seafaring and economic cooperation, India's engagement with the Arctic will be supported by the development of a robust human, institutional and financial base in keeping with the philosophy of *Aatma Nirbhar Bharat*.

Objectives

7.0.2 Expand the capacity and awareness of Arctic-related scientific research by strengthening the NCPOR, involving other relevant academic and scientific institutions in India, identifying nodal institutes and promoting partnerships among institutions and agencies.

7.0.3 Promote research capacities in Indian Universities in the fields of earth sciences, biological sciences, geosciences, climate change and space-related programmes relevant to the Arctic.

7.0.4 Widen the pool of experts in sectors such as mineral, oil and gas exploration, blue-bio economy and tourism relevant to the Arctic.

7.0.5 Strengthen training institutions for training seafarers in Polar/Ice-Navigation and build region-specific hydrographic capacity and skills necessary to undertake Arctic transits.

7.0.6 Build indigenous capacity in building ships of Ice-class standards, including for research.

7.0.7 Expand India's trained manpower in maritime insurance, chartering, arbitration and brokerage for potential usage in the Arctic region.

7.0.8 Build wide-ranging institutional capacity on the study of Arctic maritime, legal, environmental, social, policy and governance issues, including application of UNCLOS and other Treaties governing the Arctic region.

8.0 CONCLUSION AND IMPLEMENTATION

8.0.1 India's interests in the Arctic are scientific, environmental, economic as well as strategic. It is for this reason that India's engagement with the Arctic region over the decades has been consistent and multi-dimensional. India believes that any human activity in the fragile region should be sustainable, responsible and transparent, based on respect for international laws, including UNCLOS.

8.0.2 India's Arctic Policy is aimed to prepare the country for a future where the biggest challenges facing humankind, such as climate change, can be successfully addressed only through collective will and effort. India can, and is ready to play its part and contribute to the global good. Close partnerships with countries of the Arctic region and other international partners to ensure sustainable development, peace and stability in the Arctic region will also be essential for the realisation of India's national development plans and priorities. This approach is in accordance with the Indian philosophy of *Vasudhaiva Kutumbakam* - the world is but one family.

8.0.3 India's Arctic Policy shall be implemented through an Action Plan and an effective governance and review mechanism consisting of an inter-ministerial Empowered Arctic Policy Group. Implementation will be based on timelines, prioritisation of activities and allocation of requisite resources. The implementation will involve all stakeholders including academia; the research community; and business and industry.

ACRONYMS

ACAP: Arctic Contaminants Action Program

ACGF: Arctic Coast Guard Forum

AEC: Arctic Economic Council

AFoPS: Asian Forum for Polar Sciences

AIP: Arctic Investment Protocol

AMAP: Arctic Monitoring and Assessment Programme

AMBI: Arctic Migratory Birds Initiative

AMTP: Arctic Marine Tourism Project

AORF: Arctic Offshore Regulators Forum

ATS: Antarctic Treaty System

BEAC: Barents Euro-Arctic Council

CAFF: Conservation of Arctic Flora and Fauna

CAO: Central Arctic Ocean

CBD: Convention on Biological Diversity

CCAMLR: Commission for the Conservation of Antarctic Marine Living Resources

COMNAP: Council of Managers of National Antarctic Programs

EPPR: Emergency Preparedness, Prevention and Response

HCA: Hydrographic Committee on Antarctica

IASC: The International Arctic Science Committee

ICT: Information Communication Technology

IHO: International Hydrographic Organisation

IMO: International Maritime Organisation

INSTC: International North South Transport Corridor

IPCC: Intergovernmental Panel on Climate Change

IRNSS: Indian Regional Navigation Satellite System

ISRO: Indian Space Research Organisation

MARPOL: The International Convention for the Prevention of Pollution from Ships

NCPOR: National Centre for Polar and Ocean Research formerly National Centre for Antarctica and Ocean Research (NCAOR)



NISAR: NASA-ISRO SAR Mission
NORDEFCO: Nordic Defence Cooperation
NSR: Northern Sea Route
PAME: Protection of Arctic Marine Environment
RISAT: Radar Imaging Satellite
SAO: Senior Arctic Officials
SAON: Sustaining Arctic Observation Networks
SCAR: Scientific Committee on Antarctic Research
SDI: Spatial Data Infrastructure
SDWG: Sustainable Development Working Group
SLCP EG: Short-Lived Climate Pollutants Expert Group
SIOS: Svalbard Integrated Earth Observing System
Ny-SMAC: Ny-Ålesund Science Managers Committee
UArctic: The University of the Arctic
UDWS: Unified Deep-Water System
UNCLOS: United Nations Convention on the Law of the Sea
UNFCCC: United Nations Framework Convention on Climate Change
UNSDG: United Nations Sustainable Development Goals
WWRNS: Worldwide Radio Navigation System

