Instructions for Observers subject to review

Introduction

This document provides the reporting template and accompanying instructions for Observers to be reviewed during the **Russian Chairmanship**.

The deadline for submission is **1 June 2022**

According to the "Arctic Council Rules of Procedure" (Annex 2), every four years from the date of being granted Observer status, Observers should state affirmatively their continued interest in Observer status, and will be reviewed at the Ministerial meeting. The following **19 Observers** from the *Rovaniemi Group* will be reviewed at the next Ministerial meeting, and are requested to submit their review report by

- France;
- Italian Republic;
- Japan;
- People's Republic of China;
- Republic of India;
- Republic of Korea;
- Republic of Singapore;
- Spain;
- International Federation of the Red Cross and Red Crescent Societies (IFRC);
- Nordic Environment Finance Corporation (NEFCO);
- North Atlantic Marine Mammal Commission (NAMMCO);
- United Nations Development Programme (UNDP);
- Arctic Institute of North American (AINA);
- Association of World Reindeer Herders (AWRH);
- Circumpolar Conservation Union (CCU);
- International Arctic Social Sciences Association (IASSA);
- International Work Group for Indigenous Affairs (IWGIA);
- University of the Arctic (UArctic);
- International Maritime Organization (IMO).

Role of Observers

The role and responsibilities of Observers, as well as criteria for admission to the Arctic Council, can be found in the "Arctic Council Rules of Procedure" (Annex 2) and the "Observer Manual for Subsidiary Bodies."

The primary role of Observers is to observe the work of the Arctic Council. Observers contribute to the Arctic Council primarily through engagement at the level of Working Groups, Task Forces, and/or Expert Groups. Observers are invited to the meetings and other activities of the Arctic Council unless the Senior Arctic Officials decide otherwise. Observers may also propose projects through an Arctic State or a Permanent Participant.

Report submission

Observer review reports should include the relevant information described below and in the template.

(a) A description of the Observer's contributions to the work of the Arctic Council since the time of the Observer's most recent submission, or in the previous two years, with special focus on contributions to the subsidiary bodies through project participation and support, as well as collaboration with Permanent Participants;

(b) If applicable, a description of the Observer's future plans to contribute to the work of the Arctic Council, with special focus on contributions to the subsidiary bodies through project participation and support, as well as collaboration with Permanent Participants; and,

(c) If applicable, a description of the Observer's contributions to other aspects of the Arctic Council and its goals not covered in the previous sections since the time of the Observer's most recent submission, or in the previous two years.

Observer review reports should be submitted electronically to the **Arctic Council Secretariat** via email: acs@arctic-council.org not later than **1 June 2022**. Please bear in mind while preparing your report that all Observer reports will be published online in the *Observer* section of the Arctic Council online Library (OAR) after the 2023 Ministerial meeting. Observers under review will be invited to take part in individual, 30-minute, follow-up virtual meetings with the Chairmanship and the ACS in November-December 2022.

If an Observer fails to submit a report during the review process, the Arctic Council will consider this to mean that the Observer **is no longer interested in maintaining its status** as an accredited Observer to the Arctic Council.

Cover sheet

Full name of Observer State or Observer organization:

Republic of India

Date of submission of the Review Report:

10 April 2023

Observer's website:

Information for appropriate contact person

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Is your State or Organization interested in continuing as an Observer of the Arctic Council?

☒ Yes ☐ No

Observer Review Report

Please describe in no more than two pages your state's or organization's contributions to the work of the Arctic Council's Working Groups, Task Forces, and/or Expert Groups since the time of your most recent report, or in the previous two years. Please highlight contributions to specific projects, such as through proposals, concept development, in-kind and financial support, and hosting of meetings. Please detail any collaboration with Permanent Participants, such as project proposal endorsement and support.

India joined the Arctic Observer Group in 2013. Ever since, India has formulated and executed projects in Arctic in line with the activities of various Working Groups of Arctic Council. Though, in the last couple of years, the pandemic has disrupted the field trips, various scientific investigations have been continued based on the data generated. In 2022 India has released its Arctic policy, which encourages to plan, coordinate and execute high quality science programs towards the understanding of the Arctic environment in the backdrop of challenges faced by a changing climate. After a break, India will resume field programmes in the Arctic in 2023 summer in Svalbard and in Canadian High Arctic Station (CHARS).

During the current term as observer to the Arctic Council, several projects/studies have been executed in harmony with the objectives of various Arctic Council Working Groups. A synopsis of the activities implemented by India in consonance with the activities of the respective Working Groups/project steering group is provided below.

1. Arctic Monitoring and Assessment Programme (AMAP): The goal of AMAP is to provide reliable and sufficient information on the status of the Arctic environment, and various threats to the system and provide scientific advice on actions to be taken to support Arctic governments in their efforts to take remedial and preventive actions relating to contaminants, India has mounted the following projects considering its contribution to the assessment program.

[A] Impact assessment of increased macroalgal biomass on microbes and microbial processes: Macroalgal biomass is increasing along the coast of high Arctic fjords in the Svalbard region, especially, Kongsfjorden, due to oceanic warming and the consequent decline in sea ice. As a part of the annual growth cycle and due to wave friction a large proportion (> 80% of the total biomass) of macroalgal biomass is released into the water column as particulate- and dissolved organic carbon (DOC), which acts as the substrate for bacterial utilization. Thus, the macroalgal forest has the potential to alter the water column and benthic (sediment) microbial community structure and metabolism that could set off a series of complex biogeochemical changes in the high Arctic fjords. National Centre for Polar and Ocean Research (NCPOR) is currently studying microbial abundances, metabolism (biomass production and respiration), extracellular enzyme activities, community structure, and putative functions inside the macroalgal forests. This data will help in understanding the potential consequences of macroalgal forests on the cycling of carbon and nutrients in the Arctic fjord.

[B] Impact of sea-ice variability on microbial communities and their processes:

The variation in the sea-ice extent of the central Arctic Ocean (CAO) is a matter of concern for the global scientific fraternity as well as policymakers. The impact of unprecedented warming on CAO sea-ice concentration and related biogeochemical processes is baffling the scientific community. To answer some of these questions the NCPOR in collaboration with the Norwegian Polar Institute (NPI) has participated in a research cruise in the Nansen and the Amundsen basin, from 20th July to 23rd August 2022. The main aim of this cruise was to link physical/microphysical processes with the microbiological processes associated with ocean circulation and sea-ice change.

[C] Monitoring of Arctic Precipitation

India has mounted projects to observe the characteristics of precipitation in relation to a changing Arctic. The observations are carried out from Gruvebadet Atmospheric laboratory in Ny Alesund Svalbard. The lab is equipped with instruments that records precipitation, clouds, vertical structure of temperature and humidity. Currently the focus is on the response of precipitation to warming as well as the phase changes in precipitation and extreme precipitation. Near continuous data is being generated under this program.

[D] Monitoring of Arctic Fjords for climate change studies

Climate impact on Arctic Fjords is studied under this program. Recent studies focused on the generation of near inertial waves in the fjord, a subsurface physical mechanism generated by a surface forcing capable of mixing waters with different temperature and salinity. In ice covered regions such mixing are rare but warming and change in the stratification of the fjord may lead to above said mechanisms. The study also employs ocean models to identify the physical processes.

2. Conservation of Arctic Flora and Fauna (CAFF): CAFF serves as a vehicle to cooperate on species and habitat management and utilization, to share information on management techniques and regulatory regimes, and to facilitate more knowledgeable decision-making. Project that is implemented by India at Svalbard that could contribute to CAFF is given below

[A] Bacterial community dynamics and response to naturogenic and anthropogenic perturbations in the Arctic ecosystems:

Under this project, novel species have been identified in Kongsfjorden. Based on the physiological, biochemical, chemotaxonomic, phylogenetic and phylogenomic analyses, isolate 20VBR1^T is considered to represent a novel species of the genus *Phenylobacterium*, for which the name *Phenylobacterium glaciei* sp. nov. is proposed.

3. The Arctic Contaminants Action Program: One of the major goals of ACAP is to reduce emissions of pollutants into the environment in order to reduce the identified pollution risks, encourage national actions for Arctic State governments to take remedial and preventive actions relating to contaminants and other releases of pollutants etc., The following study may contribute to ACAP

[A] Selected Emerging Contaminants and Toxic Metals in the Environmental Matrices, Ny-Ålesund, Arctic

Under the project, investigations on dioxins a group of chemically related compounds that are persistent organic pollutants (POP) and highly toxic compounds like Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans have been conducted in the Arctic Fjords.

4. Sustainable Development Working Group (SDWG): Focuses advancing sustainable development and improving environmental, economic and social conditions of Indigenous peoples and Arctic communities.

[A] India participates in the discussion of SWDG since 2019. Dr. India has attended the plenary meeting during February and October 2021 and participated in the discussions.

If applicable, please describe in no more than one page your State's or Organization's future plans for contributing to the work of the Arctic Council's Working Groups, Task Forces, and/or Expert Groups. Please highlight intentions to contribute to specific projects and to collaborate with Permanent Participants.

India is committed to carry out high impact research on Arctic and looking forward to strengthening scientific and logistic cooperation with Arctic States. At present the core area of Arctic research is the monitoring of Arctic Fjords in Svalbard and investigating teleconnection between the Arctic and Tropics, especially monsoon at various time scales. Both programs are envisaged to generate long term environmental data sets for understanding of Arctic in a changing climate and policy decisions. While these programs will continue, pan Arctic research for a better understanding of Arctic's response to climate change and its influence on global climate, particularly the influence low on latitudes is needed. In such a scenario, India recognizes the need of formulation of collaborative logistics and scientific programmes with Arctic states. Under the cooperation with Norway, India has participated in a scientific cruise to the North Pole to understand Arctic Ocean hydrography and biological responses. More scientific themes will be explored in future in line with the Arctic Council's and IASC key mandates. The specific projects of our interest are as below.

AMAP: Climate variability and trends focusing on sea-ice, precipitation, teleconnection, aerosols and contaminants

ACAP: Black Carbon studies, Microplastics, Toxic substances in Arctic environment

CAFF: Migratory birds, Arctic biodiversity, invasive species

SWDG: Blue Economy in the Arctic.

PAME: Arctic Shipping, Underwater noise, Marine litter.

If applicable, please describe in no more than one page your State's or Organization's contributions to other aspects of the Arctic Council and its goals not covered by the previous sections since the time of your most recent report, or in the previous two years.

In 2022 India released the Arctic policy. It rests on the six pillars viz,

- Science and Research,
- Climate and Environmental Protection,
- Economic and Human development,
- Transportation and Connectivity
- Governance and International Cooperation and
- National Capacity Building.

India prioritise all efforts to share data from Arctic through the national Polar Data Centre (NPDC), also the data base is linked to the SIOS as well. As a part of capacity building, India trains a number of PhD and masters students in polar sciences. India also initiated the process of strengthening the observation network to complement existing efforts and to understand Arctic environmental changes and its implications in a Pan Arctic perspective. A National Conference on Polar Sciences will be held in May 2023 to bring together polar researchers of diverse backgrounds to address various scientific and operational concerns.

India is a part of European Union Horizon 2020 project "ARCTIC PASSION" envisages to build a system of Pan Arctic observation for societal purpose. As a part of Work package 1 efforts will be taken to augment, extend, better integrate and coordinate observations across marine and atmosphere with in-situ, remote sensing, Indigenous Local Knowledge/Community Based Monitoring observations.

India is participating in various international events related to Arctic.