Scientific and Science-related Cooperation with the Antarctic Community and Responses to COVID-19

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**Information Paper submitted by Korea (ROK)**

***Overview***

The Republic of Korea has been a Consultative Party since 1989, and highly values the cooperation with other Parties in the spirit of the Antarctic Treaty. This report is prepared to inform the Consultative Parties and the wider Antarctic community of the current status of logistical operation in response to COVID-19 and highlights of the Korean scientific activities during 2021-22 Antarctic summer season.

***Research Highlights of 2021-22 Antarctic summer season***

Field research programs were scaled-down during 2020-21 season in order to prevent any breakout of COVID-19 among those working in Antarctia. Based on the experience of dealing with the pandemic during the past two years, the Korean Antarctic Program applied strict preventative measures such as vaccination and quarantine. Scientific activities were able to resume at a similar scale compared to pre-pandemic seasons.

The Antarctic King Sejong Station, located at the tip of the Antarctic Peninsula, remains as the key research site for the Korean Antarctic Program and scientific collaboration. During the 2021-22 summer season, the station welcomed 91 Korean and international visitors, from 37 research and expert groups, and have supported their research activities and station maintenance projects on-site.

Ecosystem Science is the focus of the research in areas nearby King Sejong. During last season, research teams have conducted field studies on microbiology and marine environment, which will contribute to identifying the correlation between environmental changes and ecosystem responses in the region. Geophysical survey and atmospheric observation were carried out in collaboration with the Turkish and Malaysian Antarctic program. Monitoring activities for terrestrial ecosystem and environmental and ecological contamination were conducted, in order to investigate effects of Antarctic station operation on the environment.

The Antarctic Jang Bogo Station has become the base camp for scientific research in the Ross Sea and the Northern Victoria Land for the Korean Antarctic Program. During this summer season, 93 scientists and experts from multiple disciplines have visited Jang Bogo for station maintenance projects and for the participation into land-based and ocean-going field expeditions in the nearby areas.

Last season, an expedition team continued their traverse route into the inland of Antarctica, securing a route over a thousand kilometers that connects Jang Bogo with Concordia Station being operated by French and Italian Antarctic programs. The route has provided an opportunity to conduct geophysical survey of the continent, and will be able to accommodate subglacial lake and deep ice core drilling, as well as astronomical observations. In an effort to investigate the impact of environmental changes on Antarctic ecology, bio-loggers were deployed to study the seals inhabiting near the station. Another team was able to successfully hatch Antarctic silverfish in captivity.

Changes in the ocean environment and biodiversity are being studied to better understand the ecosystems in the Ross Sea Marine Protected Area. Ice sheet retreat and ocean circulation are also a large part of the research taken place on IBRV Araon, which carried out research with 10 research teams on board.

One Korean scientist visited Vostok Research Station, operated by the Russian Antarctic Program, during 2021-22 season to investigate anthropogenic and natural characteristics of atmosphere-ice sheet exchanges as a part of international deep ice coring network program.

***Proactive Measures against COVID-19***

As an operator of Antarctic research infrastructure, Korea has cooperated with other national Antarctic operators to prevent and control the spread of the virus to ensure the safety of those working in the field. In contrast to the previous season, field activities in 2021-22 were carried out with a semblance of normalcy due to progress in vaccination programs and the development of anti-viral treatment.

The Korean Antarctic program and its managers participated in relevant COMNAP meetings and in the preparation for the “COVID-19 Outbreak Prevention and Management Response Guidelines”. All Antarctic visitors’ onsite quaranteen protocol and logistic timeline were in compliance of the guidelines as well as the protocols layed out by the gateway cities, Punta Arenas, Chile and Christchurch, New Zealand.

To aviod exposing research stations to the virus, rigorus screening protocals were put in place. Only those who were fully vaccinated, i.e. who are at least 14 days after completing their final dose, were allowed to travel on a commercial flight to a gateway city after receiving negative PCR test results. Upon arriving at the gateway city, the travellers were quarantined for 14 days before continuting their travel to Antarctica.

Same vaccination and PCR test criteria were applied to those embarking IBRV Araon. All crew and staff quarantined inside Araon for 7 days before the ship departed the port. In order to minimize outside contacts, the crew were equipped with protective clothing and disinfectants when coming to contact with the staff at the port of call.

The stations and vessel were equipped to deal with the possiblity of an outbreak. Antigen test kits and medication for treating COVID-19 (Regkirona) were supplied to the year-round infrastructures upon consultation with healthcare professionals. Negative pressure isolation quarters and facility were prepared on Araon as well as at the King Sejong Station. The personnel were trained with a manual on how to respond in case of an outbreak. Personal protective equipment (PPE) that were made available to the personnel include protective clothing, helmets, goggles, and equipment such as disinfectant spray, plastic covers, and negative pressure transfer equipment.

***International Cooperation***

The Korean Antarctic program recognizes the importance of international cooperation in dealing with emergency situations, including responses to COVID-19. Although the movement between the stations were largely restricted as a part of preventative measure, great efforts were made to ensure logistics supplying the stations were on schedule. The Korean program closely cooperated with the New Zealand and Chilean programs with the aid of the Korea-New Zealand Antarctic Cooperation Centre (KNACC) in Christchurch and Korea-Chile Antarctic Cooperation Center (KCACC) in Punta Arenas, as both cities are gateway to Korean Antarctic stations.

Amidst the challenges posed by COVID-19, the Korean researchers and operators of Antarctic programs will continue to collaborate with other Consultative Parties and support the new members of the Antarctic research community.