9. GAPS IN KNOWLEDGE AND UNCERTAINTIES

The following major gaps and uncertainties exist in the assessment of the environmental impacts of the construction and operation of the new Indian base in the Larsemann Hills:

- Uncertainty of sea ice extent during the period January-March.
- The exact berthing spot of the ship close to the landing site is not known.
- The CEE is based on the conceptual design of the station. There may be some modifications based on the site requirements, practical difficulties etc.
- Impact matrix and evaluation have been done according to expert judgment, which are based on the predicted values, and are subject to change depending on the environmental conditions.
- During the long life span of the station, the need-based scientific activities and the energy scenario may change with the developments in the technologies.
- The detailed footprint may vary depending upon the implementation of the final design.
- Detailed topographical survey of the construction site is not yet available.

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10. CONCLUSIONS

The construction and operation of the station at a promontory in the Larsemann Hills will have more than minor and transitory impacts. The major impacts are expected from air emissions and human footprints. With proper mitigation measures like use of CHP concept for heating the station and the renewable energy sources, the impact of fossil fuel on air emissions will be brought to permissible limits.

Establishment of the research base at this site will enhance the scientific efforts and scope for co-operation with neighboring stations.

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ABBREVIATIONS and ACRONYMS

AAD	-	Australian Antarctic Division
AFPOS	-	Asian Forum of Polar Sciences
ALCI	-	Antarctic Logistics Centre International
ASMA	-	Antarctic Specially Managed Area
ASPA	-	Antarctica Specially Protected Area
ATCM	-	Antarctica Treaty Consultative Meeting
ATS	-	Antarctic Treaty System
ATV	-	All Terrain Vehicle
BHC	-	Benzene Hexachloride
CEE	-	Comprehensive Environmental Evaluation
CO	-	Carbon Monoxide
CPCB	–	Central Pollution Control Board
CTD	-	Conductivity, Temperature, Depth
DDT	-	Dichloro-Diphenyl Trichloroethane
DFM	-	Digital Fluxgate Magnetometer
DIM	-	Declination Inclination Magnetometer (DIM)
EIA	-	Environmental Impact Assessment
EMC	-	Electro Magnetic Compatibility
GPS	-	Global Positioning System
GSI	-	Geological Survey of India
HSM	-	Historic Site and Monument
IEE	-	Initial Environmental Evaluation
IFO	-	Intermediate Fuel Oil
ISC	-	International Seismological Centre, U.K.
ITRF	-	International Terrestrial Reference Frame
MARPOL 73/78	-	International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978
MDO	-	Marine Diesel Oil
MEPC	-	Marine Environment Protection Committee
NCAOR	-	National Centre for Antarctic and Ocean Research
NMTOC	-	Non Methane Total Organic Compounds
NMVOC	-	Non methane volatile organic carbon
NOx	-	Nitrogen Oxides

PCB	-	Polychlorinated Biphenyl
PM	-	Particulate Matter
PPM	-	Proton Precession Magnetometer
SO_x	-	Sulfur Oxides
TEC	-	Total Electron Current
TOC	-	Total Organic Compounds
USEPA	-	United States Environmental Protection Agency
USGS	-	U.S. Geological Survey

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