

resorts and hotels provided in the Coastal Regulation Zone Notification (1991) under Environment (Protection) Act, 1986.

The Department of Ocean Development in co-ordination with the Ministry of Environment and Forests, has proposed under the World Bank funded project, to develop details of guidelines specifying techniques and methodologies for conducting Environmental Impact Assessment Studies for coast related activities like ports and harbours, waste disposal, tourism and marine transportation.

(b) and (c) The detailed Environmental Impact Assessment guidelines developed for ports and harbours by the Department of Ocean Development has been peer reviewed and finalized and submitted to Ministry of Environment and Forests for further action. Similar details of guidelines for other sectors are under development.

(d) The guidelines published by the Ministry of Environment and Forests are being enforced through the National Coastal Zone Management Authority at the National level and State/Union Territories Coastal Zone Management Authorities at the State/UT level. All these authorities have been empowered under the Environment (Protection) Act, 1986 to take action against violators.

19th Indian Expedition to Antarctica

3716. SHRI C. RAMACHANDRAIAH:
DR. C. NARAYANA REDDY:

Will the Minister of OCEAN DEVELOPMENT be pleased to state:

(a) whether it is a fact that the 19th Indian Expedition to Antarctica was launched in December, 1999;

(b) if so, what are new experiments conducted by the Expedition; and

(c) what success has been achieved so far by the Expeditions to Antarctica?

THE MINISTER OF OCEAN DEVELOPMENT (DR. MURLI MANOHAR JOSHI): (a) Yes, Sir. The 19th Indian Antarctic

Expedition was launched on 9th December, 1999 from Cape Town, South Africa.

(b) In addition to the ongoing experiments in the fields of Atmospheric Science, Earth Sciences and Glaciology, Global Change Research, Biological and Environmental Sciences, Human Biology, Medicine and Engineering and Communication, the following new experiments were conducted during the 19th Antarctic Expedition.

- Palyno-stratigraphic studies on lake sediments to understand the past climatic history and floral assemblages of Antarctica.
- Establishment of permanent environmental laboratory for EIA studies aimed towards environmental conservation.
- Induction of Riometer to understand the air current system associated with geomagnetic activity.
- Upgradation of the seismic station by commissioning a digital broad band seismic instrument for tele-seismic investigations.
- Study of the effect of ultra violet radiation and cold stress on human immune system.

(c) The salient achievements of the Indian Antarctic Expedition are as follows:

- The Indian Antarctic missions have effectively contributed in enhancing India's prestige scientifically which has ensured the protection of our national interests in the global platform of nations in Antarctica by playing a visible and active role in the Antarctic Treaty System as a Consultative member.
- Creation of a climatological data base of Antarctica for predictive monsoon and climate modelling. The data is being transmitted on GTS for Antarctic weather prediction.
- Day time auroral studies carried out for the first time by any country in Antarctica using an indigenously fabricated day-glow photometer.
- Commercial application of the monostatic doppler acoustic sodar developed in Antarctica for studies on environment parameters in the mainland.

- Creation of a geological database through mapping of hitherto uncovered area of 10,000 sq. km. in the Wohlthat mountains.
- Discovery of rock types which closely resemble the metapelites and anorthosites from the peninsular India which gives insight to Gondwanaland reconstruction.
- Molecular and biochemical investigations of bacteria and yeasts have given vital insights into low temperature membrane mechanism and discovery of several new species.
- Initial assessment of krill in the Indian Ocean sector of the Southern Ocean was obtained for scientific base line studies.
- Isolation of low temperature microbes in Antarctica for the degradation of organic waste in low temperature conditions which can have applications in Himalayas.
- Use of medical database collected in Antarctica for understanding man's adaptive power and functional reserves and its application to cold areas of the country.
- Indian station Maitri was indigenously designed, fabricated and erected at Antarctica by DRDO.
- Low temperature structural engineering materials, toilet incinerators and shelters used in Antarctica have been successfully deployed in frontier areas of the country.
- Understanding the windows of long distance communication by successful uplinking of Maitri through E-mail, computer interfaced HF communication and near real time picture transmission.
- The Indian Navy and Air Force have gained professional expertise in snow ice navigation, helicopter operations and long distance communication under adverse climate conditions.
- The Indian Army has acquired unique skills and knowledge related to operational aspects of machineries and life support systems in extreme conditions of Antarctica, which simulates conditions in the high altitude frontier areas. This has created a pool of highly trained manpower, which may be vital for our national defence needs.

- Eight permanent scientific observatories are operating on a continuous basis from Maitri and contributing to Polar Scientific data base.
- Alternative sources of energy such as wind turbines and fuel cells are being experimented at Antarctica keeping in view the Protocol on Environmental Protection to the Antarctic Treaty.
- A vast array of scientific and technological information has been generated through publication of thirteen technical reports, several books and more than 300 scientific papers.

Salinity Ingress in Coastal States

**3717. SHRI LALITBHAI MEHTA:
SHRIMATI SAVITA SHARDA:**

Will the Minister of OCEAN DEVELOPMENT be pleased to state:

(a) whether the coastal areas of Gujarat are faced with salinity ingress;

(b) if so, what steps Government propose, to stop this salinity ingress; and

(c) what is the progress made in Gujarat, and in other States having coastline, to stop salinity ingress?

THE MINISTER OF OCEAN DEVELOPMENT (DR. MURLI MANOHAR JOSHI): (a) Yes, Sir. Coastal areas of Gujarat, mainly in Saurashtra and Kachchh regions, face the salinity ingress.

(b) and (c) The Central Groundwater Board is planning to regulate the groundwater withdrawal in the coastal areas and to promote rain water harvesting techniques. Mass awareness campaigns have also been organised to educate the people on the ill effects of over-exploitation of groundwater resources. The Government of Gujarat are constructing salinity ingress prevention works like Tidal regulators, Recharge reservoirs, Check Dams, Recharge tanks, Recharge wells, Spreading channels, etc. to prevent salinity ingress. Salinity ingress is reported from a few places in Tamil Nadu and Union Territory of Pondicherry.