

ments being carried out in India do not normally cover more than a year.

Comprehensive studies are needed to evaluate the seasonal longshore and onshore-offshore sediment transport. Onshore-offshore transport is initiated by the high and short period waves resulting from a storm removing the sand from the beach and transporting it into the sea to form offshore sand bars. During the ensuing fair weather period, the sediments formed as offshore bar tend to migrate onshore and build

up the beach. This cycle is linked to the climatic season in which offshore transport dominates during the monsoon season while onshore transport dominates during the fair weather season. Longshore sediment transport is more dominant than onshore-offshore transport and of great significance to coastal engineers who are interested in annual changes rather than seasonal variations. Further, formulating computer models to study the behaviour of sediment movement along Indian coast is very essential.

Theme 5 : Marine Nonliving Resources

Ocean Technology

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The relevance of science and technology to development has found global recognition in the UN Conference on Science and Technology for Development which has led to a number of Programmes of Action (1979). High priority is given to self-reliance through the strengthening of the national scientific and technological capabilities of developing countries, an objective which calls for the improvement of international institutions. This issue is also addressed by the UN Convention on the Law of the Sea and this includes a comprehensive regime for the conduct of scientific marine research and the transfer of technology. In this context, besides promoting marine scientific research and technology and related training and transfer of knowledge through "regional centres", mention is also made of national centres to be created at the local level for the same purpose. This reflects the concern for participation by and the aspiration for real partnership among developing countries in the field of scientific and technological international programmes and activities in the future.

Though the Law of the Sea Convention calls upon developed nations to co-operate with developing countries to help them strengthen their

scientific and technological infrastructure, including research and development, there is a limitation on the opportunities offered to the

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developing countries. In effect, the technology developed by the programmes of the advanced countries does not address all the needs of the developing countries. What the developing countries need in terms of ocean technology is not merely the transfer of technology, but co-operation to promote the development and transfer of technology specifically directed to the needs and



interests of developing countries, thus implying the creation of the necessary human, material and institutional infrastructures. This should be implemented by providing for training and education, equipment and assisting those most in need of development of their potential in technology.

The importance of development of technology and ocean service infrastructure for the developing countries including India calls for a rational and effective approach as there is a great need for manpower with the appropriate scientific, technical and managerial capabilities. These will enable the authority not only to understand available scientific data, technologies and other know-how, but also to develop technologies further.

Areas of significance where there is great need for technology development are:

- Novel observational strategies for open ocean and coastal waters.
- Autonomous in-situ and remote (satellite) measurements.
- Data management network to handle uninterrupted systematic, long term, real time data flow.
- New algorithm to elicit meta data.
- Operational predictive model with inputs from space observations.
- Products for commercial use.

