

PREFACE

Waterfalls Institute of Technology Transfer (WITT) was established in 1994 and one of its focused area of work programme was the study and analysis of Ocean Wealth.

With the support of the Department of Ocean Development (DOD), the Institute commenced a bimonthly WISTA in the area of Ocean Wealth in the year 2004; this support for this publication was for 2 years and later it was supported for 3 years by Indian National Centre of Ocean Information Services (INCOIS). The thirty issues of WISTA: Ocean Wealth contain very valuable information which can be brought out as a book "A View of Ocean Wealth Through WISTA".

WISTA was a new initiative of Waterfalls Institute of Technology Transfer to provide up-to-date capsules of information on a variety of subjects of current interest. These could cover a wide range of topics, including marine life and ecosystem, ocean circulation, plate tectonics and the geology of the sea floor, and the chemical and physical properties of the ocean. It envisioned that such updates will widen the horizon and open up new VISTAS for application of Science and Technology through innovative skills of experts, particularly engineers, scientists, researchers and doctors.

WISTA: Ocean Wealth was specifically designed to meet the needs of Scientists and Technologists in the field of Oceanography with special attention towards climate change, declining fisheries, eroding coastlines, development of new drugs from marine resources and the invention of new technologies in exploration of the sea. The inaugural issue was published in February 2003 and it carried messages from experts in the field.

The then Secretary, Dr. Harsh K. Gupta, Department of Ocean Development, Ministry of Science and Technology, in his message wrote, "In Keeping with the spirit to create awareness about the sustainable development of the ocean resources for the benefit of society, it is heartening to note that the Waterfalls Institute of Technology Transfer (WITT) is initiating its new bimonthly information update "WISTA: OCEAN WEALTH". I wish all the best to WITT for successful launching and continuation of WISTA: Ocean Wealth".

The then Vice Chairman, Dr. S.Z. Qasim, Society for Indian Ocean Studies (SIOS) in his message wrote, "I am extremely pleased to know that the Waterfalls Institute of Technology Transfer is bringing out a new publication entitled WISTA: Ocean Wealth. I must congratulate the Department of Ocean Development for their new initiative in commissioning the publication of WISTA devoted to the evaluation and exploration of Ocean Wealth and I hope that the message brought out by them will reach even the farthest region of our country within a short time".

The then Deputy Director Dr. Syed Ismail, Administration of the Union Territory of Lakshadweep, in his message said "I am happy to know that your Institute is bringing out a bimonthly publication titled, WISTA: Ocean Wealth. I hope it would be useful for the students, public and officials in Lakshadweep who are seeking knowledge in Ocean Wealth and related subjects.

The research and analysis team had reviewed several emerging areas and published them in this new bimonthly. This is the most attractively got up WISTA and targeted to reach far and wide in the country and sent to many Institutions including many in- house R&D units in the country.

The Institute continued its publication WISTA: Ocean Wealth for 5 years and the 30th issue was published in March 2008. Most of the issues published by the Institute on this subject are available on its website www.witts.org.

The Institute considers that a large volume of work done reflected in the Publication of WISTA: Ocean Wealth will serve as useful reference material, particularly the material under the Special Feature, Perspective, and In Focus. These three groups of articles reflect analyzed material which had much more than current news value. These are assembled in this compilation for further use/ reference.

The material published over the years is divided into 12 chapters namely (i) Seas and Oceans (ii) Oceanography (iii) Marine Resources (iv) Coral Reefs (v) Energy (vi) Exploration (vii) Polar Science (viii) Coastal Management (ix) Vessels & Shipping (x) Tsunamis (xi) Policy and Strategy, (xii) Other Aspects of Ocean Wealth

The articles in each chapter are grouped under suitable sub-headings. Several articles coming under the sub-headings are presented in the order in which they appeared in print. For each chapter a brief Preamble highlights the contents of the several articles so that an interested reader can appreciate the coverage in that article and chose to go through the selected article. All the twelve chapters have been covered with important photographs relevant to the write-up of individual article. To make it more convenient a directory of abbreviations has been placed at the end of the last chapter.

While the chapters are arranged as may be expected in a text book on Ocean Wealth, within each chapter there will be gaps or breaks in moving from one article to another. The Preamble presented in each chapter explaining the highlights of the articles in a chapter will alert the reader as to what he can expect in a chapter and as such would smoothen his experience in bridging over the gaps between two articles.

In compiling the above volume thanks are due to many persons who contributed in preparing 'Special Feature', 'Perspective' and 'In Focus' items in the several issues of WISTA published over the last few years. Many staff members of the Waterfalls Institute of Technology Transfer had painstakingly collected information from different countries and assembled them in a systematic manner. The efforts of Mr, S.R. Adige Mr. S.S. Kalra, Mr. V. Venkataraman, Mr. Suresh Kumar and Dr. Kishan Lal are recalled with appreciation. Dr. Kishan Lal, Director, WITT had very carefully sifted through all the publications and assisted in arranging the articles in different chapters.

I do hope that this compilation would be useful to a student of Chemical Technology, Biotechnology, Chemistry and Geophysics, as well as those who wish to undertake studies and research on topics that are covered in this volume.

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