

# **Sustainable Development of the World's Large Marine Ecosystems during Climate Change**

A commemorative volume to advance sustainable development on the occasion of the presentation of the 2010 Göteborg Award





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## Preface

The people of Sweden have an abiding commitment for advancing toward sustainable development and promoting actions to reduce and control global warming. This commitment has long tradition. In 1972 the UN's first major conference on international environmental issues was held in Stockholm, Sweden. As a nation we have adopted in our Parliament forward-looking environmental policies to advance sustainable development. Our overall goal in Sweden is to solve major environmental problems within one generation. To attain this goal requires the sincere commitment of a wide range of bodies and organizations such as county administrative boards and local authorities.

In Göteborg (Gothenburg), the city also has a long tradition to work proactively with sustainable development together with academia and business. The city of Gothenburg recognizes that the challenges of sustainable development require new and unconventional solutions. To encourage new solutions we have established the Göteborg Award for Sustainable Development.

The Göteborg Award is the city's international prize that recognizes and supports work to achieve sustainable development. In the Göteborg region and from a global perspective, the Award, one million Swedish crowns, is administrated and funded by a coalition of the city of Göteborg and twelve companies. The Göteborg Award is considered the "environment equivalent of the Nobel Prize."

This year, the Göteborg Award is recognizing the serious degradation of our oceans, and the outstanding contributions being made for sustainable development of ocean goods and services. The oceans are essential to all life on Earth, and yet mankind's most ruthless exploitation is taking place in the seas through overfishing, pollution and other environmental impacts that damage biological diversity and the very basis for life both underwater and for humans on land. For this reason, the Göteborg Award for Sustainable Development in 2010 goes to two prominent persons who have in different ways strongly contributed to solutions for sustainable development of our oceans. The Göteborg award will be divided equally between Kenneth Sherman from the United States and Randall Arauz from Costa Rica.

Recognizing the importance of promoting global efforts underway for sustainable development of the oceans, the Göteborg Award Selection Jury is pleased to distribute a special volume, *Sustainable Development of the World's Large Marine Ecosystems during Climate Change* on the occasion of the presentation of the 2010 Göteborg Award.

In keeping with the sustainable development theme of the Göteborg Award, contributors to the commemorative volume are focused on actions proposed and underway by high profile public figures, scientists, and policy experts for

reducing climate warming and advancing sustainable development of marine goods and services.

*Prof. John Holmberg  
Chair of The Göteborg Award for Sustainable Development Selection Jury  
UNESCO Chair  
Vice-president  
Chalmers University of Technology  
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## **A Message from the Director of the Environment & Energy Group, United Nations Development Programme (UNDP)**

*Climate change is a critical global issue. Without action, climate change could negate decades of development progress and undermine efforts for advancing sustainable development.*

*As the UN's global development network, UNDP recognizes that climate change calls for a new development paradigm—a paradigm that mainstreams climate change into sustainable development planning at all levels, links development policies with the financing of solutions and helps countries move toward less carbon intensive sustainable economies.*

*The integrity of all 64 of the World's Large Marine Ecosystems (LMEs) and the livelihoods of billions of people that depend upon them are under threat not only from climate change, but also from overfishing, toxic pollution, nutrient over-enrichment, invasive species, habitat degradation, and biodiversity loss. The large majority of these LMEs are shared by two or more countries, underscoring the need for regional cooperation to advance sustainable LME management. The UNDP Environment and Energy Group is pleased to partner with the Global Environment Facility, other UN agencies, intergovernmental organizations, and US-NOAA in providing capacity building and scientific and technical assistance in 75 developing countries executing ten Large Marine Ecosystem (LME) projects in Asia, Africa, Latin America, and Europe. Through these and other projects, UNDP also provides technical support to strengthen the capacities of developing coastal countries bordering LMEs to adapt to the effects of climate change on vital LME resources.*

*A firm scientific basis is essential in developing options for mitigating and adaptive actions during the present period of global warming. The LME approach recommends a baseline of information at the LME management scale of changing states of productivity, fish and fisheries, pollution and ecosystem health, and socioeconomic and governance conditions. This time-series information provides for assessment of the extent of overfishing, nutrient over-enrichment, habitat loss, and the progressive warming rates of surface water in LMEs around the globe, against which the success of climate change mitigation and adaptive actions to advance sustainable development of marine goods and services can be measured.*

*UNDP welcomes this approach as a key contribution toward meeting the Millennium Development Goals for reducing poverty, alleviating hunger and sustaining the environment. The world's LMEs contribute an estimated \$12.6 trillion annually to the global economy. LME goods and services provide employment and incomes to billions of people, many among the world's*

*poorest, living in coastal population centers in Africa, Asia, Latin America, and eastern Europe. Through the continued cooperative efforts of UNDP and its partners, a growing number of countries have initiated joint LME management projects and gained support from the international community to develop and sustain vital economic assets of LMEs for present and future generations.*

*UNDP welcomes this volume on the sustainability of the world's Large Marine Ecosystems as a key contribution to advancing the needed paradigm shift in LME management in a changing climate. The papers featured cover a range of key issues, from the impacts of climate change on LMEs to new policy and institutional tools for LME governance. UNDP wishes to express its sincere thanks to the distinguished group of contributors to this volume for their leadership and commitment to sustainable human development.*

*Dr. Veerle Vandeweerd, Environment & Energy Group,  
UNDP*

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