

Science and Technology for Secondary School

The Blue Planet

The Water Cycle in the Earth Systems

Orit Ben-Zvi Assaraf

Nir Orion

Molly Yunker

Oded Ben Menachem

Anat Yarden

Daniel Ronen

Jorge Hugo Lemcoff



Ben-Gurion University of the Negev
Blaustein Institutes for Desert Research
Zuckerberg Institute for Water Research



Scientific Advisory

Prof. Daniel Ronen
Prof. Eliezer Zamsky
Dr. Malka Yayun

Scientific Editing - English

Dr. Molly Yunker

English Translation

Dr. Molly Yunker

Printing and Layout

Avi Tal

Design

Hana Vega

Computerized Graphic Arts

Carmel Gorni

Cover Design

Amram Prat

Coordination and Production

Dr. Molly Yunker

Photography

Shalom Nidam

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Please note: The English edition of The Blue Planet was written for the United States, but can be used for any English-speaking country in the world. We encourage you to adapt the materials for your local region and environment to increase the relevance of the topic to the students in your country.

In addition, the targeted grade level for this curriculum is flexible, and could be used with students at a wide range of levels. We suggest looking over the materials and deciding if it is appropriate for your students.

THE BLUE PLANET can be found at this website:

<http://stwww.weizmann.ac.il/g-earth/geogroup/main.asp?pagekind=4&ID=20>

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Preface

All signs point to our environment moving in a frightening direction: The water will be a serious problem in the 21st century. Obviously, it is expected that this is an extremely critical change, and it could be the cause of a series of crises in different parts of the world. There are compelling data that we all know, for example, that 1.2 billion people lack access to safe drinking water, 2.4 billion people lack access to adequate sewage systems, from 5 to 8 million people die annually from diseases and disasters related to water, including 6,000 children per day. The expected impact as a result of global changes (such as the continued global population growth, changes in land use, migration from rural areas to cities, the excessive growth of large cities and the changes climate, to name just some of the global trends) have likely caused dramatic changes in the hydrological cycle. Although the total amount of water will remain constant, its distribution in time and space on Earth's surface is likely to change considerably, causing extreme hydrological events such as floods and droughts. It is reasonable to assume that there will be changes in water recharge.

Therefore, in the near future we will face a great challenge related to severe water crises, and we find it necessary to consider appropriate adaptation strategies, including appropriate institutional responses. The appropriate response will require, of course, a deeper study of the water cycle. This can only be achieved by launching new educational programs suitable for all individuals, including for community leaders, politicians, citizens, and for future generations.

With this in mind the meeting related to World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa, the United Nations launched the Decade of Education for Sustainable Development (UN DESD). The Decade, under UNESCO management, covers the period 2005-2015. As part of the UN DESD, the UNESCO International Hydrological Programme is implementing a comprehensive program of education, whose main objective is to raise awareness and knowledge about water issues at all educational levels, from kindergarten through programs for Ph.D. study.

It is therefore with great pleasure, that UNESCO presents all the countries of English-speaking world this book, "The Blue Planet - The Water Cycle in the Earth System", which contains a novel program for the study of topics related to water, with the level of primary-secondary education. This program encourages different learning abilities of students and promotes the ability of teachers to teach based on scientific reasoning and focusing on the

developing of higher order thinking skills and reflection regarding environmental issues.

The program was developed, translated, and adapted by the Weizmann Institute of Science in Israel. The program has been generously donated by the Israeli National Commission for the International Hydrological Programme and the Israeli National Commission for UNESCO. We appreciate this generous donation and wish to express our sincere appreciation to all those involved in this noble process.

I have the conviction that “The Blue Planet” will provide the opportunity to immerse young people all over the world in exciting and interesting topics related to water. This will enhance our identification with one of the treasures that have made life possible on our planet. We also hope that this contribution will help improve our knowledge and awareness about the importance of water and our planet as vital and necessary for humankind. We also hope that this generous donation will help avoid misunderstandings and build bridges between people by showing that our needs are similar and that only together can we work to safeguard this vital resource for our common future and a better world. The water binds, and does not divide.

Prof. Andras Szollosi-Nagy
Deputy Assistant Director-General
Secretary of the International Hydrological Programme
UNESCO