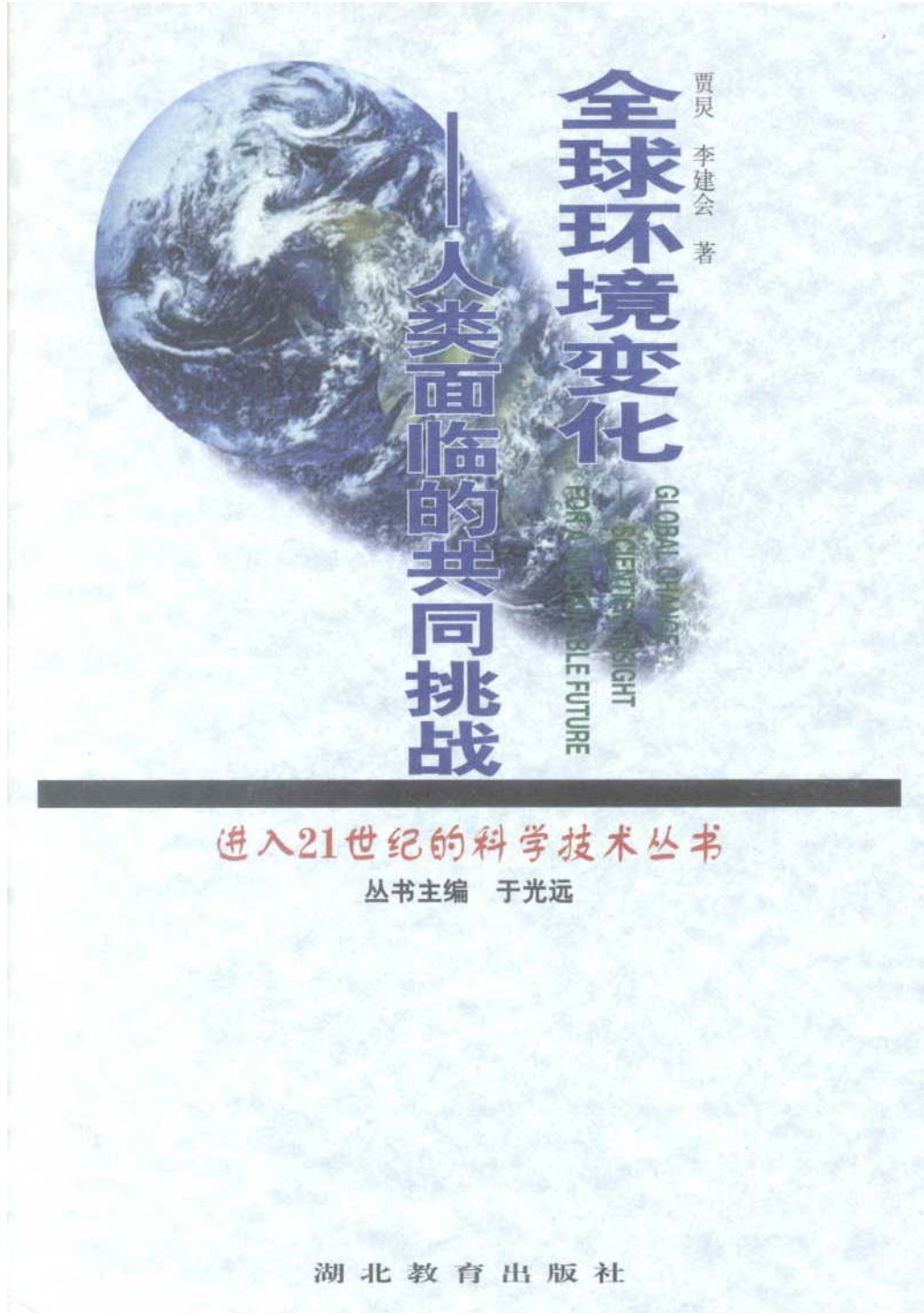


GLOBAL CHANGE: SCIENTIFIC INSIGHT FOR A SUSTAINABLE FUTURE

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PREFACE

The earth where mankind live on has occurred for 4.6 billion years, but today is in an unprecedented situation. The global environment has, through millennia, been beset by changes. Solar and planetary fluctuations, tectonic, volcanic and seismic perturbations, and other natural events have, over many time scales, shaped the earth and determined its environment. In the span of a single human generation, the earth's life sustaining environment is expected to change more rapidly than it has over any comparable period of human history. Much of this change will be of our own making. Worldwide economic and technological activities are contributing to rapid and potentially stressful changes in our global environment in ways that we are only now beginning to understand. The effects of these changes may profoundly impact generations to come.

Nature forces have influenced and shaped the environment of our planet over the course of its lifetime. The uniqueness and challenge posed by the changes facing us today lie not only in the magnitude and rate at which these changes are occurring, but also in mankind's ability to inadvertently affect such changes. Increasing atmospheric concentrations of greenhouse gases, due in part to the burning of fossil fuels, may significantly alter global climate. Agriculture, forestry, and other landuse practices, industrial activities, waste disposal, and transportation have altered terrestrial and marine ecosystems: thus affecting, for example, biological productivity, water resources, and the chemistry of the global atmosphere. These functional changes, evident also in the decline of stratospheric ozone layer and in acid rain, transcend the traditional boundaries of scientific disciplines and have potential impacts that reach beyond the domains of individual nations. The environmental sciences and global environmental change researches are multi-discipline approaches, which based on geography, biology, chemistry, climatology and hydrology etc., to the nature, mechanisms and consequences of all these changes.

Based on review of current materials concerning different aspects of global environmental change research, the book provides an overview of change of planet earth and human activities for the changes. Chapter one and two are compilation of summaries of the evolution of the relationship between human and nature; chapter three shows a series of environmental problems that disturb our generation; chapter four and five analyse the mechanisms of global environmental changes and their trends in the future; the last chapter introduces human efforts for our common future.

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TABLE OF CONTENTS

CHAPTER ONE THE ORIGIN AND EVOLUTION OF GLOBAL ENVIRONMENT

- 1.1 The origin of the earth **1**
 - 1.1.1 *Cradle of life* **1**
 - 1.1.2 *Original environment of the earth* **3**
- 1.2 Evolution of terrestrial environment and atmosphere **4**
 - 1.2.1 *Terrestrial Environment* **4**
 - 1.2.2 *Atmosphere* **7**
- 1.3 Evolution of Hydrosphere, Climate and Biome **9**
 - 1.3.1 *Hydrosphere* **9**
 - 1.3.2 *Climate* **11**
 - 1.3.3 *Biome* **12**
- 1.4 Cosmic Environment **15**
 - 1.4.1 *Solar System* **15**
 - 1.4.2 *Moon* **17**
 - 1.4.3 *Stars and Planets* **18**
- 1.5 Integration of Global Environment **19**
- 1.6 Origin of Human Being **21**

CHAPTER TWO EVOLUTION OF HUMAN-NATURE RELATIONSHIP

- 2.1 Primitive Era, Collection and Hunting **23**
- 2.2 Agricultural Era: Altering Land Cover **26**
- 2.3 Industrial Era: Greatly Altering the Global Environment **30**
 - 2.3.1 *The Beginning of Environmental pollution* **31**
 - 2.3.2 *Incensement of Environmental Pollution* **36**
 - 2.3.3 *Environmental Pollution Became Severe* **42**
- 2.4 Globalisation, Sustainable Development **47**
 - 2.4.1 *Environment and Development* **47**
 - 2.4.2 *Sustainability* **51**

CHAPTER THREE GLOBAL ENVIRONMENTAL ISSUES

- 3.1 Wide Spread of Environmental Pollution **63**
 - 3.1.1 *Air Pollution* **64**
 - 3.1.2 *Water Pollution* **69**
 - 3.1.3 *Soil Pollution* **78**
 - 3.1.4 *Food Contamination* **86**
 - 3.1.5 *Noise* **88**
 - 3.1.6 *Solid waste in Outer Space* **90**
- 3.2 Degradation of Natural Ecosystems **91**

- 3.2.1 *Deforestation* **92**
- 3.2.2 *Rangeland Degradation* **94**
- 3.2.3 *Land desertification* **95**
- 3.2.4 *Soil Erosion* **97**
- 3.2.5 *Salinazition* **99**
- 3.3 **Rapid Growth of World Population 101**
 - 3.3.1 *Current of World Population* **101**
 - 3.3.2 *Consequences of Population Growth* **105**
- 3.4 **Declining of Global Biodiversity 108**
 - 3.4.1 *Value of Biodiversity* **109**
 - 3.4.2 *Threatened Species and Ecosystems* **113**
 - 3.4.3 *Reasons for Declining of Biodiversity* **117**
 - 3.4.4 *Biodiversity conservation and Sustainable Use* **119**
- 3.5 **Climate Change 120**
 - 3.5.1 *Greenhouse effect and Global Warming* **122**
 - 3.5.2 *Acid Rain* **125**
 - 3.5.3 *Depletion of Ozone Layer* **127**

CHAPTER FOUR MECHANISM OF GLOBAL ENVIRONMENTAL CHANGE

- 4.1 **Natural Processes Contribute to Global Environmental Change 131**
 - 4.1.1 *Solar Activities* **132**
 - 4.1.2 *Volcanoes* **140**
 - 4.1.3 *Snow, Ice and Glaciers* **146**
 - 4.1.4 *Change of Chemical Composition of Atmosphere* **152**
- 4.2 **Human Activities Contribute to Global Environmental Change 160**
 - 4.2.1 *Human induced emission of greenhouse gases* **161**
 - 4.2.2 *Land Use and Land Cover Changes* **166**
 - 4.2.3 *Human Induced Depletion of Ozone Layer* **171**

CHAPTER FIVE GLOBAL ENVIRONMENTAL CHANGE IN THE FUTURE

- 5.1 **Change of Atmosphere 175**
 - 5.1.1 *Elevated CO₂ and Other Greenhouse Gases* **175**
 - 5.1.2 *Depletion of Ozone Layer* **179**
 - 5.1.3 *Air Pollution* **182**
- 5.2 **Climate Change 183**
 - 5.2.1 *Climate Change Scenarios* **184**
 - 5.2.2 *Certainty and Uncertainty* **186**
 - 5.2.3 *Consequences of Climate Change* **191**
- 5.3 **Supplies and Quality of Water in the Future 197**
 - 5.3.1 *Declining of Water Resources* **197**
 - 5.3.2 *Severe Water Pollution* **199**
- 5.4 **Land Condition in the Future 200**

CHAPTER SIX COMMON ACTIONS FOR SUSTAINABLE FUTURE

- 6.1 **Evolution of Awareness on Global Environmental Change 203**
 - 6.1.1 *Environments* **204**
 - 6.1.2 *Stockholm Conference* **204**

- 6.1.3 The Rio Earth Summit 207*
- 6.2 Governmental and Inter-Governmental Actions 209**
 - 6.2.1 United Nations and Regional Organizations 209*
 - 6.2.2 Chinese Government 216*
- 6.3 International Research Programmes on Global Change 230**
 - 6.3.1 Man and Biosphere Programme (MAB) 230*
 - 6.3.2 Global Environmental Measurement System (GEMS) 231*
 - 6.3.3 International Geosphere-Biosphere Programme (IGBP) 233*
 - 6.3.4 World Climate Research Programme (WCRP) 236*
 - 6.3.5 International Human Dimension Programme (IHDP) 236*
- 6.4 Environmental Educations and Public Awareness 238**
 - 6.4.1 Environmental Educations 238*
 - 6.4.2 Awareness and Participation 244*