

State and Trends of the Lebanese Environment

2010



This report may be reproduced in whole or in part without special permission, provided acknowledgement of the source is made and the reproduction is not sold. The report should be referenced as MOE/UNDP/ECODIT, 2011.

Unless otherwise stated, all photos are courtesy of ECODIT.

Design and layout by Zéna Khairallah

Printed and bound in Lebanon by Wide Expertise Group

Disclaimer

The findings, interpretations and conclusions expressed in this report are those of the authors and do not necessarily represent those of the Ministry of Environment or the United Nations Development Programme. ECODIT does not guarantee the accuracy of the data included in this report. The boundaries, colors, denominations, and other information shown on maps and images in this work do not imply any judgment on the part of ECODIT concerning the legal status of any territory or the endorsement or acceptance of such boundaries. The Ministry of Environment, the United Nations Development Program and ECODIT assume no responsibility of any kind for the use that may be made of the information contained in this report.

Preface

Welcome to the third edition of the State of the Environment report in Lebanon, with a slightly revised title “State and Trends of the Lebanese Environment” in line with global calls to not only understand the current situation but also assess current trends and future environmental change. Funded by the Lebanese Government/Ministry of Environment (MOE) in coordination with the United Nations Development Programme (UNDP), this edition follows two earlier versions, the first issued in 1995/1996 with funding from the Mediterranean Technical Assistance Programme through the World Bank and the second in 2001/2002 with funding from the Lebanese Government in coordination with UNDP.

This SOER is part of the Program of Work of the MOE for the years 2010-2012, prepared in line with the Ministerial Declaration of the Government of Development and Improvement. Together with other studies and reports, such as the World Bank funded Country Environmental Analysis and the Cost of Environmental Degradation, they aim at strengthening the Ministry with the tools needed to analytically diagnose the state of the environment in Lebanon, and accordingly better formulate policies, plans and programs towards environmental mainstreaming.

Composed of a total of ten chapters grouped into four sections, the report unfolds with a brief introduction followed by a chapter on Environmental Governance (Section I). Then proceeds Section II on “State of the Environment” covering the four environmental media: Water Resources, Air Quality, Biodiversity and Forests, and Land Resources. “Environmental Priorities” are then discussed in Section III, with a focus on: Haphazard Urbanization, Solid Waste and Energy Crisis. The report finally concludes with an outlook titled “The Future Today” where two scenarios are compared: Market First (or Business as Usual) and Sustainability First.

Prepared by ECODIT under the technical supervision of both the MOE and UNDP, this report benefited from the contribution of many experts, as listed in the various chapters. The review involved a number of professionals from both the public and the private sectors, in line with the participatory approach adopted by the current Government, and highlighted in the title of the Program of Work of the MOE for the years 2010-2012.

To all readers, professionals and businessmen, students and researchers, academicians and reporters, politicians and decision-makers, and environmentalists at large, happy reading from the Ministry of Environment team... and remember your opinion matters; so please send your feedback to soer@moe.gov.lb.

Mohammad Naji Rahal
Minister of Environment
June 2011

Foreword

This is the third “State and Trends of the Lebanese Environment” report that has been published to date and the second that UNDP is proud to have collaborated on with the Lebanese Ministry of Environment. This edition not only provides an overview of the current condition of natural resources and environmental management in the country, but also gives an analysis of past and future developments across multiple different sectors. The overall impression left by the report is alarming; although there has been commendable progress in many areas over the last decade, trends do not indicate a sustainable future for Lebanon without strong political will to further integrate environmental considerations across all sectors. It is crucial for politicians, policy makers, decision-makers at both the national and local levels, entrepreneurs, academics, journalists and citizens alike to be aware of the necessity to change our development approach to one that will safeguard Lebanon’s future generations.

Robert Watkins
UNDP Resident Representative
June 2011

Acknowledgment

The State and Trends of the Lebanese Environment (SOER) is the coordinated product of countless hours of interviews and research, editing, reviewing, reediting, proofreading, translation, and text layout. At ECODIT, the SOER team was comprised of nine specialists who bring a wealth of competencies and knowledge in the fields of environmental management and policy, urban planning, construction, air quality, biodiversity, agricultural sciences, hydrogeology and karst, solid waste, energy, and water. Lead and contributing authors are listed at the beginning of each chapter.

During the preparation of the 2010 SOER, ECODIT consulted with and sought information and interpretations from 77 individuals from various organizations and government agencies. The Ministry of Environment, UNDP and ECODIT then identified and mobilized 34 reviewers including ministry staff, UNDP staff and projects, as well as outside peer reviewers. These reviewers provided invaluable input to the overall report and precision to relevant sections of the report. Their input helped significantly augment the quality of the final product. The names of all reviewers and contributors are listed alphabetically at the beginning of each chapter.

ECODIT expressly acknowledges the unwavering support of Manal Moussallem, Senior Environment Advisor at UNDP-MOE, for her guidance and tireless commitment to the SOER process and to facilitating the compilation of the 2010 SOER by the ECODIT team.

Karim El-Jisr
2010 SOER Team Leader
Director of ECODIT Liban SARL



Contents

SECTION I Introduction

Chapter 1 Introduction	3
1.1 Background	5
1.2 Methodology	5
1.3 Population Data	6
1.4 Lebanon's Administrative Regions	7
1.5 Reader's Guide	7
Chapter 2 Environmental Governance	13
2.1 Environmental Institutions	19
2.2 Environmental Laws and Regulations	23
2.3 Environmental Research and Development	26
2.4 Access to Environmental Information and Data	28
2.5 Access to Environmental Funding	29
2.6 Advocacy and Public Participation	30
2.7 Understanding and Promoting Environmental Governance –the Puzzle	32

SECTION II State of the Environment

Chapter 3 Water Resources	47
3.1 Driving Forces	53
3.2 Current Situation	57
3.3 Policy Setting and Institutional Arrangements	69
3.4 Selected Responses to Water Issues	74
3.5 Emerging Issues and Outlook	78
Chapter 4 Air Quality	95
4.1 Driving Forces	101
4.2 Current Situation	110
4.3 Key Actors, Laws and Regulations	122
4.4 Selected Responses to Air Quality Issues	128
4.5 Emerging Issues and Outlook	129
Chapter 5 Biodiversity and Forests	139
5.1 An Ecological Overview of Lebanon	145
5.2 Driving Forces	150
5.3 Biodiversity State and Trends	154
5.4 Key Actors, Laws and Regulations	159
5.5 Selected Responses to Biodiversity and Forest Issues	165
5.6 Emerging Issues and Outlook	170
Chapter 6 Land Resources	181
6.1 Driving Forces	187
6.2 Current Situation	190
6.3 Key Actors, Laws and Regulations	201
6.4 Selected Responses to Land Issues	207
6.5 Emerging Issues and Policy Outlook	210

SECTION III Environmental Priorities

Chapter 7 Haphazard Urbanization	231
7.1 Driving Forces	237
7.2 Current Situation	240
7.3 Policy Outlook and the Way Forward	256
Chapter 8 Solid Waste	263
8.1 Driving Forces	269
8.2 Current Situation	271
8.3 Policy Outlook and the Way Forward	288
Chapter 9 Energy Crisis	299
9.1 Driving Forces	305
9.2 Current Situation	311
9.3 Policy Outlook and the Way Forward	327

SECTION IV The Outlook - Towards 2020

Chapter 10 The Future Today	343
10.1 About the Scenarios	345
10.2 Market First – Scenario Narrative	347
10.3 Sustainability First – Scenario Narrative	350

Ministry of Environment

Lazarieh Center, Downtown Beirut

Block 02A, Floor 7 and 8

PO Box: 11-2727 - Beirut, Lebanon

Tel: 961-1-976555 | Fax: 961-1-976535

Website: www.moe.gov.lb

For your comments: soer@moe.gov.lb