WORLD BANK TECHNICAL PAPER NUMBER 277 AFRICA TECHNICAL SERIES

Applying Environmental Economics in Africa

Frank J. Convery



The World Bank Washington, D.C.



CONTENTS

Foreword	xiii
Abstract	***
Abstract	XV
Preface	xvii
Chapter 1: Introduction	1
1.1 The National Environmental Action Plan (NEAP) Concept	
1.2 Evolution of Environmental Economics	3
1.3 Objectives	4
1.4 How to Use This Book	6
1.5 Why Apply Environmental Economics? The Potential Payoff	8
1.6 The NEAP Economist	16
Chapter 2: Theory and Its Policy Implications Reviewed	13
2.1 Societal Welfare and Market Failure	13
2.2 Market Failure and Policy Instruments	16
2.3 Fundamentals on Prices'	20
2.4 The NEAP Economist	25
Chapter 3: Environmental Management as Development Strategy	27
3.1 The Global Economic Context and the Implications of Trade Liberalization	27
3.2 The Question of Country Economic Scale	30
3.3 Identifying Development Priorities	31
3.4 Macroeconomic Policies	31
3.5 Stabilization and Structural Adjustment	32
3.6 Structural Adjustment and the NEAP Process	34
3.7 Sectoral Development	37
3.8 The NEAP Economist	42
Chapter 4: Underlying Causes of Environmental Degradation:	
Identifying Perverse and Positive Price Incentives	47

4.1 The Centrality of Incentives	47
4.2 The Uses of Role Playing	48
4.3 Prices as Incentives	48
4.4 The NEAP Economist	
Chapter 5: Nonprice Incentives	65
5.1 Taxes as Incentives	65
5.2 Advantages of Emission Charges	69
5.3 Tradable (Pollution) Rights or Permits	70
5.4 Green Taxation	71
5.5 Public Investment Incentive Impacts	71
5.6 Capturing Rent as an Incentive	7 <i>3</i>
5.7 The NEAP Economist	74
Chapter 6: Property Rights and Tenure Systems	77
6.1 Historical Context in Africa	
6.2 Tenure and Economic and Environmental Performance	77
6.3 The NEAP Economist	80
Chapter 7: Focusing on Costs: General Issues	83
7.1 Recurrent Costs	83
7.2 Costs Per Unit of Input	84
7.3 Costs Per Unit of Output	84
7.4 Focus on Cost-Effectiveness and Exchequer Costs	85
7.5 The Opportunity Cost Concept	86
7.6 Estimating Gross Costs of Environmental Degradation	86
7.7 Adjusting the National Income Accounts	88
7.8 The NEAP Economist	90
Chapter 8: Estimating Gross Costs of Environmental Degradation,	
Sectoral Analysis: A Ghana Case Study	93
8.1 Methodology	94
8.2 Sectoral Analysis	95
8.3 Health Costs Resulting from Environmental Degradation	102
8.4 Conclusions	103
8 5 The NEAD Economist	10/

Chapter 9: Evaluation of Benefits	107
9.1 General Considerations	
9.2 Willingness to Pay	109
9.3 Risk and Uncertainty	114
9.4 The NEAP Economist	116
Chapter 10: Comparing Benefits and Costs	117
10.1 The Demise of Cost-Benefit Analysis in the World Bank?	117
10.2 Real Compared with Nominal	118
10.3 Adjusting for Time	
10.4 The Investment Criteria	119
10.5 An Example from Mauritius	121
10.6 An Example from Lesotho	129
10.7 The NEAP Economist	
<i>;</i>	
Chapter 11: Institutional Development and Cultural Dimensions	135
11.1 Not Forgetting the Nonphysical Environment	136
11.2 Professional Reflexes	136
11.3 Institutional Development	
11.4 Monitoring and Evaluation	137
11.5 The NEAP Economist	
Appendix A: Key Literature and Data Sources	139
Appendix B: Choices for the African Farmer	
References	149
	
Index	155