



## CONTENTS

|   |           |
|---|-----------|
| <b>PREFACE</b> .....  | <b>7</b>  |
| <b>1 INTRODUCTION</b> .....   | <b>7</b>  |
| <b>2 EU AGRICULTURAL POLICY (CAP)</b> .....   | <b>8</b>  |
| 2.1 Introduction to CAP.....  | 8         |
| 2.2 Agri-environmental principles in CAP.....   | 17        |
| <b>3 EU ENVIRONMENTAL POLICY</b> .....  | <b>22</b> |
| 3.1 History of environmental policy in EU .....   | 22        |
| 3.2 Environmental law.....  | 27        |
| 3.3 EU Institutions acting in environmental protection.....                             | 32        |
| 3.4 Environmental law in Slovakia.....  | 35        |
| <b>4 WHAT IS SOIL?</b> .....  | <b>46</b> |
| 4.1 Definitions of Soil .....   | 46        |
| 4.2 Functions of Soil.....  | 48        |
| 4.3 Concept of Ecosystem Services.....  | 52        |
| 4.4 Soil Classification.....  | 53        |
| 4.5 Soil Mapping .....  | 56        |
| 4.6 Soil Information Systems in Slovakia .....  | 58        |
| <b>5 SOIL TYPES</b> .....   | <b>61</b> |
| <b>6 SOIL EVALUATION</b> .....  | <b>74</b> |
| 6.1 Theoretical Principles of Evaluation of Soil Quality and Production Capability..... | 74        |
| 6.2 Evaluation of Soil Production Potential .....                                       | 76        |
| 6.3 Typological Production Categories of Agricultural Soils in Slovakia .....           | 83        |
| 6.4 Evaluation of Soil Bioenergetic Potential .....                                     | 86        |
| 6.5 Soil Productivity Indexes.....  | 87        |
| 6.6 Indexes of Non-Commodity Soil Functions .....                                       | 88        |

|          |  |            |
|----------|--|------------|
| 6.7      | Indicators of State and Development of Soils in Slovakia .....   | 88         |
| <b>7</b> | <b>SOILS IN SLOVAKIA AND IN THE EU IN NUMBERS .....</b>          | <b>96</b>  |
| <b>8</b> | <b>THREATS TO SOIL .....</b>                                     | <b>105</b> |
| 8.1      | Loss by Soil Sealing .....                                       | 105        |
| 8.2      | Physical Soil Degradation .....                                  | 114        |
| 8.2.1    | Soil Erosion .....   | 114        |
| 8.2.2    | Pedocompaction .....   | 121        |
| 8.2.3    | Soil Degradation by Linear Underground Structures.....           | 125        |
| 8.3      | Chemical Soil Degradation.....                                   | 125        |
| 8.3.1    | Soil Acidification and Alkalinisation .....                      | 125        |
| 8.3.2    | Soil Salinization .....  | 127        |
| 8.3.3    | Pollution of Soil .....  | 128        |
| 8.3.4    | Pollution by Soil.....   | 135        |
| 8.4      | Biological soil degradation.....                                 | 138        |
| 8.4.1    | Decrease in Amount and Activities of Soil Organisms.....         | 138        |
| 8.4.2    | Increased Mineralization of Soil Organic Matter.....             | 139        |
| 8.5      | Agricultural Soil Degradation .....                              | 144        |
| 8.5.1    | Soil Sealing due to Agricultural Construction Activities.....    | 144        |
| 8.5.2    | Intentional Soil Water Regime Changes .....                      | 144        |
| 8.5.3    | Destruction of Physical Soil Structure .....                     | 146        |
| 8.5.4    | Soil Degradation due to Agricultural Production Techniques ..... | 146        |
| 8.5.5    | Use of agrocehmiclas in Agricuture.....                          | 146        |
| 8.5.6    | Allelopathy in Soil .....  | 150        |
| 8.5.7    | Soil Fatigue .....   | 151        |
| 8.6      | Overall Evaluation of Soil Degradation in Slovakia .....         | 151        |
| 8.7      | System Measures against Soil Degradation.....                    | 154        |

|           |   |            |
|-----------|---|------------|
| <b>9</b>  | <b>SOIL AND GLOBAL WORLD PROBLEMS .....</b>                                     | <b>157</b> |
| 9.1       | Soil Sealing and Other Types of Soil Loss .....                                 | 157        |
| 9.2       | Global Problems of Soil Degradation.....  | 158        |
| 9.3       | Food Security.....  | 159        |
| 9.4       | Disruption of Nitrogen Cycle .....  | 160        |
| 9.4.1     | Impact on Air Quality .....   | 160        |
| 9.4.2     | Impact on Water Resources Quality .....   | 161        |
| 9.4.3     | Impact on Plant Production Quality.....   | 162        |
| 9.4.4     | Impact on Human Health .....  | 163        |
| 9.5       | Disruption of Carbon Cycle.....   | 163        |
| 9.6       | Climate Change .....  | 168        |
| 9.7       | Ozone Layer Depletion.....  | 171        |
| 9.8       | Desertification and Drought .....   | 172        |
| 9.9       | Soil Fighting against Water and for Water.....                                  | 176        |
| <b>10</b> | <b>THE OWNERSHIP AND THE RIGHT OF USE OF AGRICULTURAL LAND IN SLOVAKIA.....</b> | <b>179</b> |
| 10.1      | Sources of the land law in Slovakia.....  | 181        |
| 10.2      | Ownership relations to agricultural land .....                                  | 183        |
| 10.3      | The price of the agricultural land .....  | 195        |
| 10.4      | The importance of land policy.....  | 197        |
| <b>11</b> | <b>LAND PROTECTION IN THE EU AND SLOVAK REPUBLIC.....</b>                       | <b>199</b> |
| 11.1      | Land protection in the EU .....   | 199        |
| 11.2      | Land protection in Slovak republic .....  | 201        |
| <b>12</b> | <b>REFERENCES.....</b>  | <b>205</b> |