

Table of Contents

| | |
|--|--------------|
| Acknowledgements | vii |
| Summary | xi |
| Resumen | xv |
| Resum | xix |
| Table of Contents | xxiii |
| 1 Introduction | 1 |
| 1.1 Visual Impact and Renewable Energies | 3 |
| 1.2 Structure of this Work | 5 |
| 2 Review of the Literature | 9 |
| 2.1 Part I: European Landscape Legislation | 10 |
| 2.1.1 Background to European Landscape Legislation | 10 |
| 2.1.2 The European Landscape Convention | 12 |
| 2.1.3 Environmental Impact Assessment and Visual Impact Assessment | 15 |
| 2.1.4 Landscape Legislation in Europe and Visual Impact Assessment | 16 |
| 2.1.5 Transboundary Efforts of Landscape Protection | 19 |
| 2.2 Part II: The Landscape Concept | 20 |
| 2.2.1 Landscape as the Scenic Appearance of Land | 20 |
| 2.2.2 Landscape as a Scenic and Natural Resource | 22 |
| 2.2.3 Landscape as a Relationship between People and Place | 24 |
| 2.3 Part III: Approaches to Visual Impact Analysis | 25 |
| 2.3.1 The Expert Approach: Landscape Valuation | 27 |

| | | |
|----------|--|-----------|
| 2.3.2 | The Public Preference Approach: Landscape Evaluation | 34 |
| 2.3.3 | The Holistic Approach: Landscape Assessment | 39 |
| 2.4 | Part IV: Measuring Visual Impact | 46 |
| 2.4.1 | Visual Impact Magnitude and Visual Impact Perception | 47 |
| 2.4.2 | The Indicator as a Tool for Expert Valuation | 50 |
| 2.4.3 | Semantic Differential Analysis as a Tool for Public Preference Evaluation | 52 |
| 2.4.4 | Data Collection and Representation | 54 |
| 2.4.5 | Advantages and Disadvantages of the Approaches . . | 54 |
| 2.4.6 | Conclusion | 59 |
| 3 | Justification of the Research | 63 |
| 3.1 | Justification of the Topic | 63 |
| 3.2 | Justification of the Methodology and Tools | 66 |
| 3.2.1 | Objective and Subjective Aesthetic Impact | 67 |
| 3.2.2 | Quantification | 67 |
| 3.2.3 | User-Friendliness | 68 |
| 3.2.4 | Integration of Public Opinion | 69 |
| 3.2.5 | Extrapolation | 69 |
| 3.2.6 | Across-Border Scope | 69 |
| 3.3 | Coherence between the Research Studies | 71 |
| 4 | Objectives | 73 |
| 4.1 | Objective of Case Study I | 74 |
| 4.2 | Objective of Case Study II | 75 |
| 4.3 | Objective of Case Study III | 75 |
| 5 | Hypotheses | 77 |
| 5.1 | Definition of the Hypotheses | 78 |
| 5.1.1 | Conceptual Definition of Hypothesis I | 78 |
| 5.1.2 | Operational Definition of Hypothesis I | 78 |
| 5.1.3 | Conceptual Definition of Hypothesis II | 79 |
| 5.1.4 | Operational Definition of Hypothesis II | 79 |
| 5.1.5 | Conceptual Definition of Hypothesis III | 79 |
| 5.1.6 | Operational Definition of Hypothesis III | 80 |
| 5.1.7 | Conceptual Definition of Hypothesis IV | 80 |
| 5.1.8 | Operational Definition of Hypothesis IV | 80 |
| 5.1.9 | Conceptual Definition of Hypothesis V | 81 |
| 5.1.10 | Operational Definition of Hypothesis V | 81 |

| | | |
|----------|---|------------|
| 5.1.11 | Conceptual Definition of Hypothesis VI | 81 |
| 5.1.12 | Operational Definition of Hypothesis VI | 81 |
| 6 | Methods and Materials | 83 |
| 6.1 | Methodology | 83 |
| 6.1.1 | Development of the Indicators | 83 |
| 6.1.2 | The Variables of the Indicator | 84 |
| 6.1.3 | Analysis for Visibility | 85 |
| 6.1.4 | Analysis for Colour | 85 |
| 6.1.5 | Fractal Analysis | 85 |
| 6.1.6 | Development of the Value Functions | 86 |
| 6.1.7 | Operational Definition of the Indicator | 86 |
| 6.1.8 | Data Collection for the Valuation | 87 |
| 6.1.9 | Application of the Indicators | 87 |
| 6.1.10 | Validation of the Indicators | 88 |
| 6.1.11 | Semantic Differential Analysis | 89 |
| 6.1.12 | Improvements to the Semantic Differential Analysis - The Intraclass Correlation Coefficient | 92 |
| 6.2 | Materials | 94 |
| 6.2.1 | Photographic Analysis | 94 |
| 6.2.2 | Surveys and Subjects | 95 |
| 7 | Summary of the Publications | 97 |
| 7.1 | Publication I | 99 |
| 7.2 | Publication II | 101 |
| 7.3 | Publication III | 103 |
| 8 | Discussion | 105 |
| 8.1 | Discussion on Objective I | 105 |
| 8.2 | Discussion on Objective II | 108 |
| 8.2.1 | Reliability and Validity of the Indicator as a Tool for Objective Valuation | 108 |
| 8.2.2 | Reliability and Validity of the Semantic Differential Analysis as a Tool for Subjective Evaluation | 111 |
| 8.2.3 | Applicability and Generalisability of the Indicator and of the Semantic Differential Analysis | 117 |
| 8.3 | Validation of the Hypotheses | 119 |

| | |
|---|------------|
| 9 Conclusions | 123 |
| 9.1 Conclusions in English | 123 |
| 9.2 Conclusiones en Español | 127 |
| 10 Future Research | 131 |
| 10.1 On the Methodology | 131 |
| 10.2 On the Tools | 134 |
| 10.3 On Visual Impact Analysis of the Landscape | 136 |
| Bibliography | 139 |
| Glossary | 159 |
| Appendix | 165 |
| Publication I | 167 |
| Publication II | 169 |
| Publication III | 171 |