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**GREENING LOCAL ECONOMIES: NATURE PARKS AS
INSTRUMENTS FOR SUSTAINABLE REGIONAL DEVELOPMENT**

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ABSTRACT

The proliferation of Nature Parks in Europe and the change in the function of these areas has brought forth questions about the meaning and extent to which Nature Parks encourage practices for regional sustainable development. As such, research into this subject is ongoing. Since the creation of the first Nature Park in Europe some five or six decades ago, today, the functions of many of these areas have metamorphosed; triggered by increasing knowledge about the importance of existing ecosystem services in park areas, on adjacent local inhabitants. Consequently, parks have moved from areas of pure conservation to areas that combine environmental preservation with other socioeconomic demands in regional development. When this multifunctional characteristic is fixed into various regional policies, Nature Parks are generally interpreted by policy makers as necessary tools for realizing sustainable development in local areas.

For the fact that parks have assumed new functions, it is certain, there are modifications in the strategies adopted for managing these areas. As a result, this study holds that the strength of Nature Parks in mitigating resource depletion, to improve socioeconomic prosperity and participatory regional processes, in rural areas in Luxembourg, is explicitly linked to the development strategies intended for these areas.

The study draws on two official Nature Parks in Luxembourg (Haute Sûre and Our), to explain contemporary strategies to simultaneously integrate activities of ecological conservation, economic development, social well-being and resource governance. Therefore, the study sticks on the concept of green economy, an integrated notion in the framework of sustainable development, as for example, promoted by United Nations Environment

Programme (UNEP, 2011), to draw a line between theory and practice of Nature Park development in Luxembourg.

To comprehend the role and impacts of Nature Parks in regional development, the study has been guided by a qualitative methodology. Methods were chosen based on flexibility and the strength to provide useful insights about parks' activities. This provided responses to the main research question; to what extent are strategies contributing to the appreciation of Nature Parks by local, regional and national stakeholders, as instruments for greening local economies, for the purpose of attaining sustainable regional development in Luxembourg?

The dissertation presents different dimensions in which Nature Parks in Luxembourg are trying to promote regional sustainability. It made use of chapters that describe and analyse ecological policies for improving ecosystem services. This is mainly guided by schemes for environmental education, biodiversity contracts and agricultural advice that convey modernisation into traditional agricultural practices. Undeniably, approaches affixed for the development of Nature Parks have been contributing in reshaping local economies. Not only are these strategies important in integrating economic development and ecological conservation, but also, the outcomes via innovative and diversified projects have fairly improved approaches for local production. A new rural identity is now being developed, standing tall as the main strength behind the marketing of locally branded Nature Park products. Apart from the fact that organic production is still a matter of controversy, concrete social policies are lacking while local participation in Nature Parks' activities is a critical challenge and absolutely insufficient.

Away from researching on the ecological, economic, social and governance approaches for greening Nature Parks, the study has also explained certain challenges caused mainly by, but not limited to, differences between stakeholders in conceptualising Nature Parks as tool for

local/regional development. The emerging drawbacks from these limitations vis-à-vis regional projects are enough reason to rethink the extent to which Nature Parks in Luxembourg encourage sustainable regional development. The research reasons that attaining sustainable development in Nature Parks is a critical challenge. This can be most effective if predestined strategies logically integrate aspects of environmental conservation, economic prosperity and social well-being, including attractive policies of regional governance.

DEDICATION

This study is devoted to the blessed memory of

LILIAN NYEMA BIGOGA

May Her Gentle Soul Rest in Peace

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CONTENTS

ABSTRACT.....	i
DEDICATION.....	iv
ACKNOWLEDGEMENT.....	v
CONTENTS.....	vi
LIST OF FIGURES	xii
LIST OF TABLES	xiii
LIST OF ABBREVIATIONS	xiv
CHAPTER 1: INTRODUCTION.....	1
1.1. The Research Problem	4
1.2. Purpose of the Study	8
1.3. Delimitation of the Study	9
1.4. Chapter Outline	10
CHAPTER 2: BACKGROUND OF THE STUDY AND STUDY AREA	12
2.1. Delineating Nature Parks in Luxembourg	16
2.2. The Upper-Sûre Nature Park	22
2.3. The Our Nature Park.....	23
2.4. Categorising Nature Parks in Luxembourg.....	24
2.5. Ecosystem Services and Nature Parks in Luxembourg	28

CHAPTER 3: STATE-OF-THE-ART-REVIEW ON NATURE PARKS, GREEN ECONOMY AND SUSTAINABLE REGIONAL DEVELOPMENT	34
3.1. Viewpoints of Nature Parks in Europe	35
3.2. Present-day Views about Nature Parks	37
3.3. Nature Parks: Views from Three European Countries	40
3.3.1. Germany	40
3.3.2. Austria	41
3.3.3. France	42
3.4. Examples of best practices about Nature Parks' strategies	43
3.5. Sustainable Regional Development in the context of Nature Parks	46
3.5.1. Regional Perspective of Sustainability	46
3.5.2. Context of Sustainable Regional Development	48
3.6. Green Growth	50
3.7. Green Economy	50
3.8. Natural Resource Governance	61
3.9. Conclusion	63
3.10. Research Questions	64
CHAPTER 4: RESEARCH METHODOLOGY	67
4.1. Research Design	67
4.2. Qualitative Methodology	68
4.3. Methods and Procedures of Data Collection and Analysis	69
4.3.1. Data Collection	69

4.3.2.	Exploratory Fieldwork	69
4.3.3	Document Analysis	71
4.3.3.	Expert Interviews	73
4.3.4.	Data Organisation and Analysis	75
4.3.5.	The Coding Scheme	76
4.3.6.	Institutional mapping.....	78
4.3.8.	Validating the Research Findings	80
4.4.	Assessing the Research Methodology	81
CHAPTER 5: NATURE PARKS' STRATEGIES FOR GREENING LOCAL ECONOMIES.....		82
5.1.	Environmental Strategies for improving Ecosystem services	83
5.1.1.	Environmental education.....	84
5.1.2.	Biodiversity contracts.....	85
5.1.3.	Environmental Advice on Agricultural Cultivation Practices.....	86
5.1.4.	Agricultural modernisation programmes	88
5.2.	Nature Parks and the Local Economy.....	89
5.2.1.	Local production in the Upper Sûre Nature Park.....	90
5.2.2.	Tea (Tei vum Sei).....	92
5.2.3.	Ble (Blei vum Séi).....	92
5.2.4.	Spelt (Spelz vum Séi).....	93
5.2.5.	Meat (Véi vum Séi).....	94
5.3.	Local production in the Our Nature Park.....	94

5.31.	Reintroducing traditional crops	95
5.3.2.	Transforming the mustard seed	96
5.4.	Sustainability Aspects in Local Production Processes.....	98
5.5.	Governance Strategies for Greening Nature Parks	104
5.5.1.	Institutions, Responsibilities and Relationships.....	105
5.5.2.	The European Union (EU)	106
5.5.3.	Public Authorities.....	107
5.5.4.	Regional Actors (Nature Park).....	108
5.5.5.	Local Authorities including Private individuals.....	109
5.6.	Participation as a framework for Nature Park Governance	109
5.7.	Difficulties in Promoting Sustainable Development in Nature Park Areas.....	110
5.7.1.	Inadequate knowledge about the concept of Nature Park	111
5.7.2.	Low rate of local participation in park activities.....	112
5.7.3.	Some Overambitious Objectives	112
5.7.4.	Insufficient youthful participation in park activities	113
5.7.5.	Conflict of ideas and interest about regional projects	114
5.7.6.	Hesitancy in financing regional projects	114
5.7.7.	Inadequate mechanisms to encourage organic production.....	116
5.7.8.	Hidden Trade-offs	117
5.7.9.	Absence of a clear social objective	118
5.7.10.	Absence of Local Indicators to Monitor Performances in Nature Parks.....	119

5.8. Conclusion	120
CHAPTER 6: Nature Parks: Instruments for Greening Local Economies in Luxembourg?	124
6.1. Parks as Instruments for Innovation and Diversification.....	125
6.1.1. Reforming traditional development strategies (Integrated Development)	125
6.1.2. Adding Quality to Regional Products	132
6.1.3. Encouraging a “third way of rural development”	133
6.1.4. Nature Parks; Instruments of “value creation” or that to which “Value is added”.137	
6.1.5. Value creation through Regional Production and Marketing	140
6.2. The social dimension of Nature Parks’ Strategies	146
6.3. Participatory Processes for sustainable development in park areas.....	151
6.4. Conclusion	155
CHAPTER 7: CONCLUSION, IMPLICATION TO NATURE PARK POLICIES AND THEORIES	159
7.1. Main Research Goals	159
7.4. Implication of the Study.....	178
7.4.1. Policy Implications	178
7.4.2. Implications for Research	182
7.5. Suggestions for Future Studies	184
7.6. Concluding Note: Nature Parks in the Era of Green Economy	187
REFERENCES	193
APPENDIXES	212

APPENDIX 1: Interview Guide for Key Actors in Nature Parks.....	212
APPENDIX 2: General Interview Guide	214
APPENDIX 3: Questionnaire	215
APPENDIX 4: List of Interview Partners.....	219
APPENDIX 5: Law Enacting the Creation of Nature Parks in Luxembourg.....	220

LIST OF FIGURES

Figure 1: Location of Luxembourg in the Greater Region	16
Figure 2: Population of Luxembourg by Canton	17
Figure 3: GDP, Employment and Unemployment estimate of Luxembourg.....	18
Figure 4: Locating Nature Parks in Luxembourg	19
Figure 5: Tourist arrivals by touristic region and country of residence	21
Figure 6: EU 2020 targets for biodiversity and ecosystems restoration	29
Figure 7 : The flow of ecosystem services and disservices	32
Figure 8: Functional Changes of Nature Parks in Europe.....	37
Figure 9: Green Economy in the Context of Convention Economy and the Green Economy.....	58
Figure 10: Kaleidoscope of Qualitative Data Analysis.....	76
Figure 11: Institutional Network for Nature Parks in Luxembourg.....	80
Figure 12: The EU label for biological agricultural products	91
Figure 13: Tei vum Sei	92
Figure 14: Blei vum Sei	93
Figure 15: Spelt vum Sei.....	94
Figure 16: Vේ vum Sei	94
Figure 17: Hemp oil from Our Nature Park.....	95
Figure 18: Mustard from the Our Nature Park.....	96
Figure 19: Sample of Colza oil from the Our Nature Park	97
Figure 20: Honey from the Our Nature Park	97
Figure 21: Ourdaller Beer	97
Figure 22: Institutional Relationships in Nature Parks (arrows represent degree of relationship)	106
Figure 23: Disintegrated Activities	129
Figure 24: Integrated Approach to Nature Park Development	129
Figure 25: Representation of integrated development in the Upper Sûre Nature Park.....	130

Figure 26: Biological label for Upper Sûre and Our Parks	141
Figure 27: Outlets for the marketing of parks' products	143

LIST OF TABLES

Table 1: Categorising Protected Areas	25
Table 2: Changing Perception of Nature Parks in Europe	36
Table 3: Main Coding Categories	78
Table 4: Main Impacts of Parks' Policies in Luxembourg	121
Table 5: Appreciating Parks' Outcomes	122
Table 6: Diversifying agricultural activities in both Nature Parks.....	134
Table 7: Values created by Nature Parks in Luxembourg	139
Table 8: Number of employees in some local cooperatives	148

LIST OF ABBREVIATIONS

CAP:	Common Agricultural Programme
DATer:	Département de l'aménagement du territoire-Luxembourg
EASC:	European Academies Science Advisory Council
EEA:	European Environmental Agency
EEG:	Environmental Economic Geography
ENRD:	European Network for Rural Development
ESCAP:	Economic and Social Commission for Asia and Pacific
EU:	European Union
GEA:	Greening the Economy with Agriculture
IBLA:	Institute for Biological Agriculture in Luxembourg
IEN:	Irish Environmental Network
IIASA:	International Institute for Applied System Analysis
IUCN:	International Union for the Conservation of Nature
IUCN:	International Union for the Conservation of Nature
LEADER (French Acronym)	Links between Actions for the Development of the Rural Economy
PNDD:	Plan National Pour un Développement Durable
RDP	Rural Development Programme
SDI:	Sustainable Development Indicator
SIA:	Social Impact Assessment
SLM:	Sustainable Land Use Management
UAA:	Utilized Agricultural Area
UNEP:	United Nations Environmental Programme
UNRISD:	United Nations Research Institute for Social Development
USP:	Unique Selling Proposition
WDPA:	World Database on Protected Areas

WRI: World Resource Institute
WTO: World Tourism Organisation

CHAPTER 1: INTRODUCTION

The strength of Nature Parks in mitigating resource depletion, to improve socio-economic prosperity and participatory regional processes, in rural areas in Luxembourg, is explicitly linked to the development strategies planned for such areas. Nature Parks through various ecosystem services are essential in delivering natural assets for human wellbeing. Services, such as those related to providing food and raw materials, regulating the quality of water, air and soil are necessary contributions for the survival of every society or economy and very important in conceptualising the relationship between humans and natural ecosystems. Present in many countries in Europe, some of these areas are important spatial features, where management approaches have been a major determinant for attaining sustainable development in local areas.

Defined as “instruments” for sustainable regional development (Ministry of Sustainable Development and Infrastructure, 2012), Nature Parks in Luxembourg are regions for mediating the impact of traditional planning and development policies, with up-to-date approaches of regional development that seek to promote a multifunctional pattern, involving economic diversity, social prosperity and environmental protection. In this respect, parks are acting as territories for stimulating sustainable values in rural areas. Also, an ongoing regional initiative to creating a third Nature Park in the Eastern part of Luxembourg is enough evidence about the intrinsic value of such areas and brings to fore other concerns about the strength of parks, as instruments.

The legal framework for the creation of Nature Parks in Luxembourg is the law of 10th of August 1993 (Mémorial A, n° 067 du 25 août 1993, p. 1198, see appendix 4.). According to this law, Nature Parks are “tools” for integrated development in rural areas, covering about 5.000 hectares or more, with a natural and cultural heritage of great value and with a double

objective of conservation and promotion of socio-economic and cultural values in the framework of sustainable development (Ministry of Sustainable Development and Infrastructure, 2012). The same memorandum goes further to explain that, Nature Parks in Luxembourg are quality labels for an entire region; potential markets for locally produced goods and platforms whose externalities would generally improve well-being in rural areas. These are important attributes that need clarification through proper investigation. In this study, ambitions are geared towards linking the above views with the notion of green economy, an integrated concept in the framework of sustainable development, as, for example, promoted by United Nations Environment Programme (UNEP, 2011). This is meant to carefully explain the strategies of Nature Parks and to understand in practical terms, the extent to which parks are tools for regional development, in Luxembourg.

The Ministry of Interior and Spatial Planning (2005) and the Ministry of Environment (1999) have described Nature Parks as tools for inspiring best practices for regional sustainability in Luxembourg. As such, Nature Parks are voluntary platforms for local municipalities to engage in quality practices towards improving local prosperity. In this way, parks have the task to diversify economic activities in rural regions using sustainable approaches. As a result, activities in Nature Parks are connected to questions about improving regional performance on objectives relating to resource management (forests, soil, as well as water), local economy (mainly agriculture), including aspects of social development (jobs) and regional governance (participatory development). From the above characterisations, it is obvious that attaining sustainable regional development in Nature Parks in Luxembourg depends on integrating the above features of regional development. Consequently, throughout this study, greater focus will be placed on the strategies to integrate ecological, economic, social and other governance attributes in development projects in Nature Parks, including the consequences of such approaches.

For the empirical analysis, the two official Nature Parks in Luxembourg (Haute-Sûre and Our) have been used as cases, to explain current approaches for sustainable development in protected areas. These places are important as cases for the study not only because they harbour features (terrestrial and aquatic resources) that require excellent methods for landscape management, but also because of the integrated nature of local projects. This will provide an easy means to analyse ecological, economic and social, including the governance aspects of sustainable development in these areas. The integrated method also distinguishes parks' projects from other sectoral approaches that take into consideration only one aspect of sustainable development. It is from here that the thesis relates Nature Parks to the concept of green economy according to the United Nations Environmental Programme - UNEP (2011), to understand the link between strategies of protected area management and concepts for encouraging principles of sustainable development.

Given that certain sectoral policies often lead to significant undesirable trade-offs between environmental conservation, economic development and social well-being, it is for sure that there are conflicting ideas about which strategy is better for attaining sustainable development. The concept of the green economy, as emphasised by UNEP (2011), is currently one of the most important normative policy notions for encouraging integrated development at any planning level, in the context of sustainable development. A green economy should result in "improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities" (UNEP, 2011). Also, an important development path of the green approach lies on maintaining, enhancing and when necessary, rebuilding natural capital as a critical economic asset and source of public benefit. As a result, in this study, an emphasis would be placed on explaining how this policy description could be locally translated in areas where Nature Parks are predestined to encourage sustainable processes.

Being an important policy concept, the green economy reflects the objectives of Agenda 21 (chapters 8-22) which, advocates for the integration of environmental conservation and socioeconomic development at the policy, planning and management levels. This study takes a similar stance to critically examine certain local/regional strategies for combining conservation and development activities in Nature Parks in Luxembourg, including the social consequences from these integrated approaches. Following this, the succeeding sections discuss the research problem and purpose, including the research design and delimitation. The chapter outline for the entire study is also explained thereafter.

1.1. The Research Problem

Programme documents in Luxembourg, from the Ministry of Interior and Spatial Planning (2005) and the Ministry of Environment (1999) have clearly identify Nature Parks as key implements to guarantee the sustainability of natural resource areas. This has been made clear through the National Spatial Planning Programme and the National Plan for Sustainable Development respectively. However, empirical analyses matching the above claims are lacking. This is especially true for studies that seek an explanation on the strategies that practically guide the integration of economic and social functions in conservation projects, in these resource areas. This has not only made it difficult to reconcile Nature Parks with the various principles of sustainable development, but it has also reduced understanding about the importance of parks as places for promoting sustainable development.

Also, the paradigm shift in protected area management in Europe (Mose, 2007) explains the need to integrate development functions in conservation projects. It argues that objectives of protected areas should move beyond the boundaries of ecological conservation to include other beneficial aspects of socio-economic development and resource governance. These are integrated values related to the approach of green economy. As such, the desire to effectively

provide economic, social and environmental benefits remain an important aspect in today's protected area policies. Moreover, although sustainability is being widely used in many conservation projects in Europe, matching experience with the concept varies (Mose, 2007). That is, in some countries, while new approaches to achieve sustainable development in protected areas have been a subject of continuous discussion and empirical testing, only a little or hardly any change can be identified elsewhere. Such revelation adds to the research problem in that, there is limited understanding as to whether parks in Luxembourg are moving along the paths described by Mose (2007). From this, it is important to explain how parks in Luxembourg practically encourage sustainable approaches. Note that, the expression "protected areas" applied in this paragraph and which will be used subsequently, is an umbrella term for spatially defined areas which are recognised, dedicated and managed through legal or other effective means to achieve long-term goals of; conservation of nature with associated ecosystem services and cultural values (Nigel and Sue, 2008 in IUCN, 2012). It consists of areas such as Nature Park, Biosphere Reserve and Regional or National Parks. As such, it should not be a surprise that in this study, Nature Parks and protected area are used as synonyms.

Likewise, the proliferation of Nature Parks in Europe is enough reason to bring forth questions about the extent to which these areas promote sustainable development. This is important, especially in local areas where livelihood depends on certain protected area policies. Consequently, the concern is to find out if the quantitative increase in Nature Parks reflects the quality development, in the framework of sustainable development. This concern mirrors the present case in Luxembourg where there are ongoing plans to make official a third Nature Park. As such, it will be important to have an idea about the situation of existing parks, in order to better plan future trends and processes of impending parks in Luxembourg.

Luxembourg has two main Nature Parks. These have been described in the National Spatial Planning Programme, from the Ministry of the Interior and Spatial Planning (2005), as important instruments to diversify regional economic activities. In this circumstance, Nature Parks are supposed to combine traditional rural economic activities with present-day social and ecological demands. This is guide, which is necessary to encourage a multifunctional character of local activities and to reinforce innovation and diversification, promoting quality development in park areas. The spatial plan goes further to explain that parks are attracting forces for small and medium size eco-friendly businesses in innovative and dynamic sectors. However, questions are bound, on the appropriate approaches to influence innovation and diversification in the regional economy as well as on the sustainable processes of anticipated approaches.

It is not always easy for policy makers to develop practical integrated strategies in fragile ecosystems like those of Nature Parks, where stakeholders have different ideas about the concept of area protection. The aspect of resource governance is necessary in this case. This is a serious challenge when considering current strategies for protected area management that advocate Nature Parks to contribute to, or direct activities of regional development (Hammer, 2007b). Contributing to regional development is relatively an easy process as it gives authorities the ability to collaborate with other actors of land use planning, on issues related to value adding. However, directing regional development requires exclusive power and control over how, what, and where to engage and promote park activities. As such, a critical challenge would be to understand the role of stakeholders and the relationships among them, mainly in terms of decision making about the development of parks in Luxembourg. This is important to analyse the governance strategies necessary for attaining sustainable development in these park areas.

In a related sense, the management authorities in parks in Luxembourg do not have legitimate powers to control local activities. In this case, realising objectives for environmental protection, especially in the production sector is a major challenge. From this, the focus would be to understand how, notwithstanding the limited powers, Nature Parks' authorities still manage to collaborate with other stakeholders, to promote a regional green economy. For the reason that parks in Luxembourg are considered model landscapes for best practices related to sustainable development (Ministry of the Interior and Spatial Planning-Luxembourg, 2005), its exemplary participatory strategies certainly have important implications, and it is hereof articulated as a question of natural resource governance. The reality will surely improve understanding on institutions for Nature Park governance as well as certain constraints about the process of governance in park areas.

Besides, the notion of green economy as described by the UNEP (2011) is necessary to provide relevant perspectives to policy makers on the importance of natural resource areas in generating prosperity goals in relation to local agenda 21. However, the success of the strategy of a green economy has been questioned, especially when it comes to the development of local areas. This is because, there is a general belief that the benefits of such a concept may tend to accrue disproportionately to urban areas, further marginalising the rural, for reasons that urban areas have the financial, workforce and skill capacities to kick-start green activities (Dougherty, 2011). Conversely, policy makers must recognize the urban bias and institute policies to promote investment in green development in rural areas. Everything being equal, the notion of green economy does not limit itself only within the eco-technology sectors that demand interesting amounts of financial stability. It is much more about human well-being, economic prosperity and processes of environmental conservation and the institutions for achieving these. Thus, it can be practiced at any level, no matter the financial or knowledge power of an area, even though fiscal attributes are important indicators

for improving the green economy. Consequently, such a study is important for bringing forth some qualitative findings that would link the concept of green economy to rural areas. In addition to these concerns, the purpose of the study is relevant for appreciating the general trend of the research.

1.2. Purpose of the Study

Creating a third Nature Parks in Luxembourg is enough reason to argue that parks are an essential component for rural development. As, such, practically, the purpose for this study is to describe and explain contemporary strategies for sustainable regional development in the context of Nature Parks in Luxembourg. From this, the focus is to make use of the notion of green economy, to provide details on how Nature Parks simultaneously integrate strategies of ecological conservation and economic development, in an attempt to improve social well-being in local areas in Luxembourg. Through this, the study seeks to provide results that will or not confirm Nature Parks as multifunctional instruments, as described in the National Spatial Planning Programme and the National Plan for Sustainable Development.

Also, it is imperative to provide practical realities on the effects of Nature Parks in local areas, which are facing challenges on how to restructure traditional agricultural activities. This will go beyond presumption about the merits of these areas in fostering regional economic development, especially in innovative and dynamic sectors. Through this, the study intends to learn about the economic strategies in Nature Parks, together with associated social and ecological effects.

The idea to include a social dimension in this study is not by chance. An oversight of this aspect will mean a deficiency for this study because such information is necessary to explain the social impact of sustainable projects in park areas. This will surely improve understanding

about the merits for developing Nature Parks in Luxembourg and on the competence of parks' strategies in realising local expectations, principally through job creation.

Moreover, in promoting sustainable regional development, Nature Parks would require successful governance strategies. This is necessary to assimilate a variety of demands, often from a cross section of actors. This is an important component in discussions related to the green economy, as it helps in regulating park activities in accordance with varying objectives (Dudley, 2008). Using relevant qualitative data, from public and private actors engaged in park activities, the study attempts to describe and explain the governance processes for promoting sustainable regional development in Nature Parks in Luxembourg. In this regard, it seeks to provide understanding on those who decide the fate of Nature Parks in Luxembourg.

Moreover, this research does not intend to explain the strategies that ought to be applied, in order to realize sustainable regional development in Nature Parks in Luxembourg. Instead, the thesis seeks to provide information from the views of planners, public and local administrators, farmers, park authorities, policy makers, researchers as well as from NGOs, on how parks contribute to regional sustainability. This group of actors have different, but related knowledge about the impact of Nature Parks in regional development. From here, the next section discusses the research design and delimitation

1.3. Delimitation of the Study

The study is limited within the discipline of Environmental Economic Geography (EEG), to explain the interface between nature protection and economic development, for the purpose of improving local well-being. As such, the study is framed with the notions of Nature Parks, green economy, and sustainable regional development. The type of information for the study, including sources, is guided by the cases being investigated; Nature Parks. Green economy in this research is defined using the approach of UNEP (2011) and entails details on how it can

be applied in projects of sustainable development at the local or regional level. Other analytical notions about the concept have also been revised, to give more credence to the UNEP's approach.

The concept of Nature Parks is drawn from characterisations and explanations found in contemporary literature and from similar documentation about spatial planning and development in Luxembourg. The review is specifically about how Nature Parks are promoting strategies for sustainable regional development. Besides being good cases to provide responses to the research questions and objectives, Nature Parks can also explain top-down and bottom-up governance processes for protected area development. As such, the aspect of resource governance has not been left out in the overall research design.

Generally, the research is designed to make discoveries and confirm existing ideas about the importance of Nature Parks as instruments for sustainable regional development in Luxembourg. This explains why the study is dependent on a broader conceptual perspective and guided by rational qualitative methods with systematic processes of data collection and analysis. Following this, the next section provides an outline for each chapter in this study.

1.4. Chapter Outline

Chapter one is the introductory chapter. It introduces the general research idea, highlighting the meaning of Nature Parks in the context of Luxembourg. It narrowly presents the conceptual background guiding the study (green economy), before diving into the research problem and purpose. The chapter concludes with explanations on the research design and delimitation as well as the chapter outline.

Chapter two is a follow-up of the introductory chapter. It discusses the background of the study. Here, a detail explanation is provided on the two official parks in Luxembourg,

together with the idea of ecosystem services as essential components in Nature parks' development.

Chapter three reviews normative and analytical texts related the idea of Nature Parks, green economy and regional development, including the concept of resource governance. It is in this chapter that the main research question together with other sub-questions is introduced. Chapter four takes on to present the research methodology. This involves methods of data collection and analysis.

The fifth chapter provides findings from the different data sources on how Nature Parks influence sustainable regional development in four different categories. That is, ecological, economic, social and governance. It also explains the different challenges influencing the smooth implementation of Nature Parks' strategies. From here, chapter six moves on to explain and analyse these results in relation with information obtained in chapter three.

Chapter seven concludes the research by summarising the research questions and findings and goes further to include certain recommendations as well as suggestions for further research. As highlighted above, the next chapter presents the background of the study.

CHAPTER 2: BACKGROUND OF THE STUDY AND STUDY AREA

According to Byrne and Wolch (2009), it is peculiar that geographers as scholars of nature-society relationship have not studied Nature Parks as extensively as researchers in other disciplines, such as leisure science. In a similar allusion, Gibbs (2006), as well as Soyez and Schulz (2008), has acknowledged that environmental aspect remains comparatively under-researched or still in their infancy in research in economic geography. This has been referred to as a loose grouping by Bridge (2008). Therefore, it is important for geographers to engage in debates on environmental issues, to bring forth empirical contributions that will provide understanding and recommendations (Gibbs 2006). These references sparked my interest and provided a framework for understanding the challenges involved in linking environmental processes with socio-economic approaches, over space and time.

My focus is on examining how the connectivity and spatial interdependence of physical environmental processes are significant for the functioning of economic systems; a subsystem of the ecosystem (Daly and Farley, 2010), and the livelihoods of those depending on it (Bridge, 2008). Consequently, because there is no clear picture of which conceptual paths are most rewarding and which specific foci are most urgent or promising in improving environmental economic research (Soyez and Schulz, 2008), this study relies on the concept of green economy as a practical and innovative perception; a means and not an end, which can be exploited to analyse Luxembourg's regional policies for natural resource areas.

Moreover, the thesis acknowledged that there have been some investigations on Nature Parks in Luxembourg and that these were directed mainly on issues related to cross-border development (University of Luxembourg 2007, Hengen and Feyeh, 2011). Nonetheless, because park areas are currently being attributed central roles in questions of sustainable development, it is important to have a study that will shift a bit the focus from previous

studies. As such, a study that will provide relevant explanations on the role of Nature Parks in regional development, with emphasis on integrating environmental, economic and social processes, as well as governance attributes.

Furthermore, the picturesque landscape of park areas in Luxembourg offers a rich biodiversity with water sources sloping down the Ardennes. Their gentle slanting interlocking spurs harbour forests and fauna while the plateaus are mainly used for agricultural purposes. If properly managed, these natural features, together with the accompanying ecosystem services would form important sources for green economic investment. Management strategies can also moderate environmental degradation on agricultural lands and improve economic and social performances of park areas in general. Attaining this objective is a challenge because managing an ecosystem like park areas will need substantial decision-making approaches from different administrative levels. Mohan (2001) has acknowledged that participatory development has been a fashionable term in the present day development literature. However, neither bottom-up nor top-down regulations by themselves are sufficient in promoting sustainable regional development in protected areas (Hammer, 2007a). As a result, the interest here is to research on the appropriate stakeholders' network that is necessary for implementing participatory development in the management of Nature Parks in Luxembourg.

Also, it might be difficult now-our-days to understand the role of Nature Park in promoting sustainable regional development only from a conservation point of view. Consequently, stakeholders in Nature Park management have a challenging task; integrate protection with other functions of development. This is the notion of paradigm shift in protected area development as previously explained (Mose and Weixlbaumer, 2007). As per this model, established protected areas would be fulfilling expectations as "model regions" of sustainable development, by trying to meet up with the challenges of combining strategies of nature

conservation with other aspects of economic and social development. In this way, protected areas will be placing human and nature at the centre of conservation and development projects (Hammer, 2007a). From this, it is understood that approaches of ecosystem preservation in protected areas are expected to improve human wellbeing. In line with this, the research is interested in understanding if parks in Luxembourg fit into the description of model regions as described above.

In addition, the idea of Nature Parks in Luxembourg dates back around the 1950s with policy documents setting objectives and functions along the principles of integrated development. This is necessary to combine traditional policies of protection with modern approaches of socioeconomic development. As “instruments” (Ministry of Interior and Spatial Planning, 2005), Nature Parks have responsibilities to contribute to and direct sustainable regional policies (Hammer, 2007a). This is crucial in defining the success or failure of these areas in attempting to promote sustainable regional development. Therefore, parks that do not meet these challenges will be forced to lose their position as development instruments. For the reason that Nature Parks in Luxembourg have been identified as asset for local areas seeking new avenues for development (Ministry of sustainable Development and Infrastructure, 2012), the idea is to know if strategies applied in these parks replicate the real notion of instrument described by Hammer (2007a).

In the National Spatial Planning Programme of Luxembourg (Ministry of Interior and Spatial Planning, 2005), parks are found important in modernising and diversifying traditional agriculture; the building block of the rural economy. Attention has been geared towards promoting mixed functions, a multifunctional agricultural approach in which meaning is placed on value-added, quality production, rural employment and ecological restoration, regional marketing of local goods and on improving local competitiveness. Reason enough

for policy making; the research is interested in explaining envisaged policies for diversification and innovation, the sustainability approaches related to these policies and how these would contribute to a new spatial order in park areas.

In Luxembourg, Nature Parks were designed to assist resource rich areas in strengthening their socio-economic conditions using sustainable strategies. As such, knowledge on the role of Nature Parks in promoting a local green economy is indispensable for understanding the development path designed for these natural resource areas. The attempt to creating a third Nature Park (Mullerthal) is a suggestion that parks are being positive in influencing local development. However, there is a deficiency in empirical evidence to ascertain this claim. Bearing in mind the scarcities of useful evidence on the efficiency of Nature Parks' strategies and because the contribution of natural features to rural development remain under-researched (Cremer-Schulte and Dissart, 2013); the need for such a study cannot be over-elaborated.

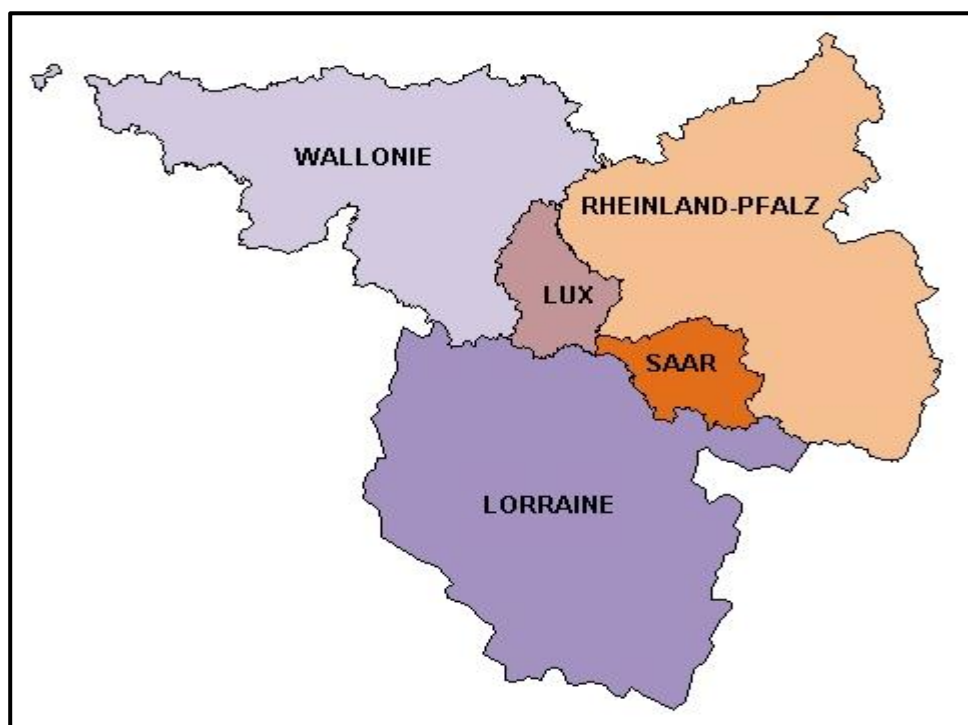
Furthermore, rural areas with vital terrestrial and marine ecosystem services have become important in discussions of local development either because of the scarcity of available resources or because of the special relevance that these resources have on sustainable development (International Institute for Applied System Analysis - IIASA, 2002). Consequently, policy makers have to design strong economic cases in such areas, using attractive green approaches (Natural Economy Northwest, 2008). This has made the approach of the green economy a recurrent theme in practices related to sustainable development in natural resource areas. To this effect, as a beginning researcher deeply inclined in the field of Environmental Economic Geography, there are high aspirations to understand the relationships between projects of nature conservation and economic development. Emphasis is on patterns and trends in environmental services and resource management, and the resulting socio-economic effects from these processes. Presumably, researching on Nature

Parks under the framework concept of the green economy would increase understanding on debates about ways for managing resource areas, given that examples of best practices are worth revealing. From this, the study moves to define the meaning of Nature Parks in Luxembourg.

2.1. Delineating Nature Parks in Luxembourg

Located in the heart of Western Europe, the Grand Duchy of Luxembourg is a small country, found in the Greater Region as in the figure below (Saar-Lor-Lux, a geographic area constituting two German border regions (Saarland and Rhineland-Palatinate), one French region (Lorraine), one Belgian (Wallonia) and the country of Luxembourg).

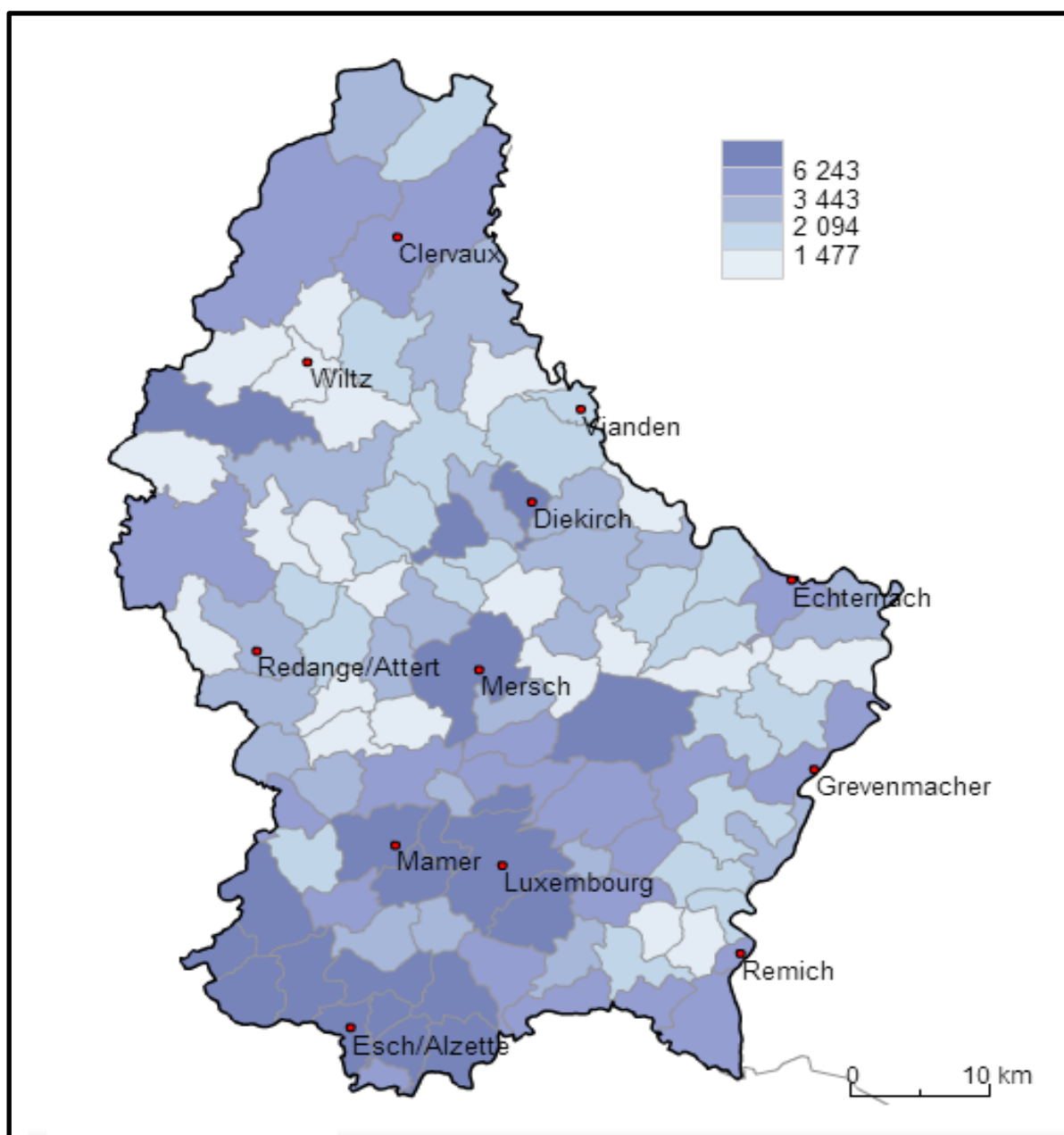
Figure 1: Location of Luxembourg in the Greater Region



Source: <http://www.granderegion.net/>.

The country covers a surface of about 2586 km², with a total population of about 562 958 inhabitants, as of January 2015 (STATEC, 2015 a).

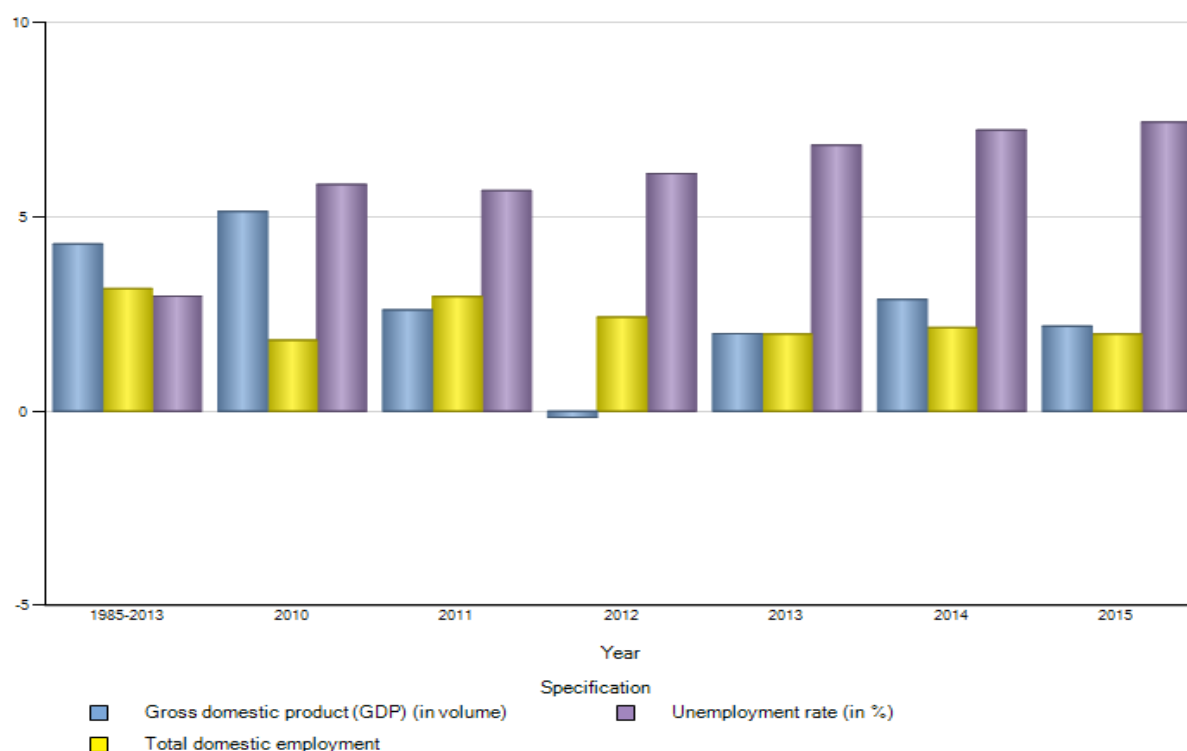
Figure 2: Population of Luxembourg by Canton



Source: STATEC (2015 a)

Economically, Luxembourg is a dynamic country, with a GDP of 2.9% in 2014. This is, however, accompanied by certain social problems, as explained by the unemployment rate of 6.9%, as of May 2015 (STATEC, 2015 b).

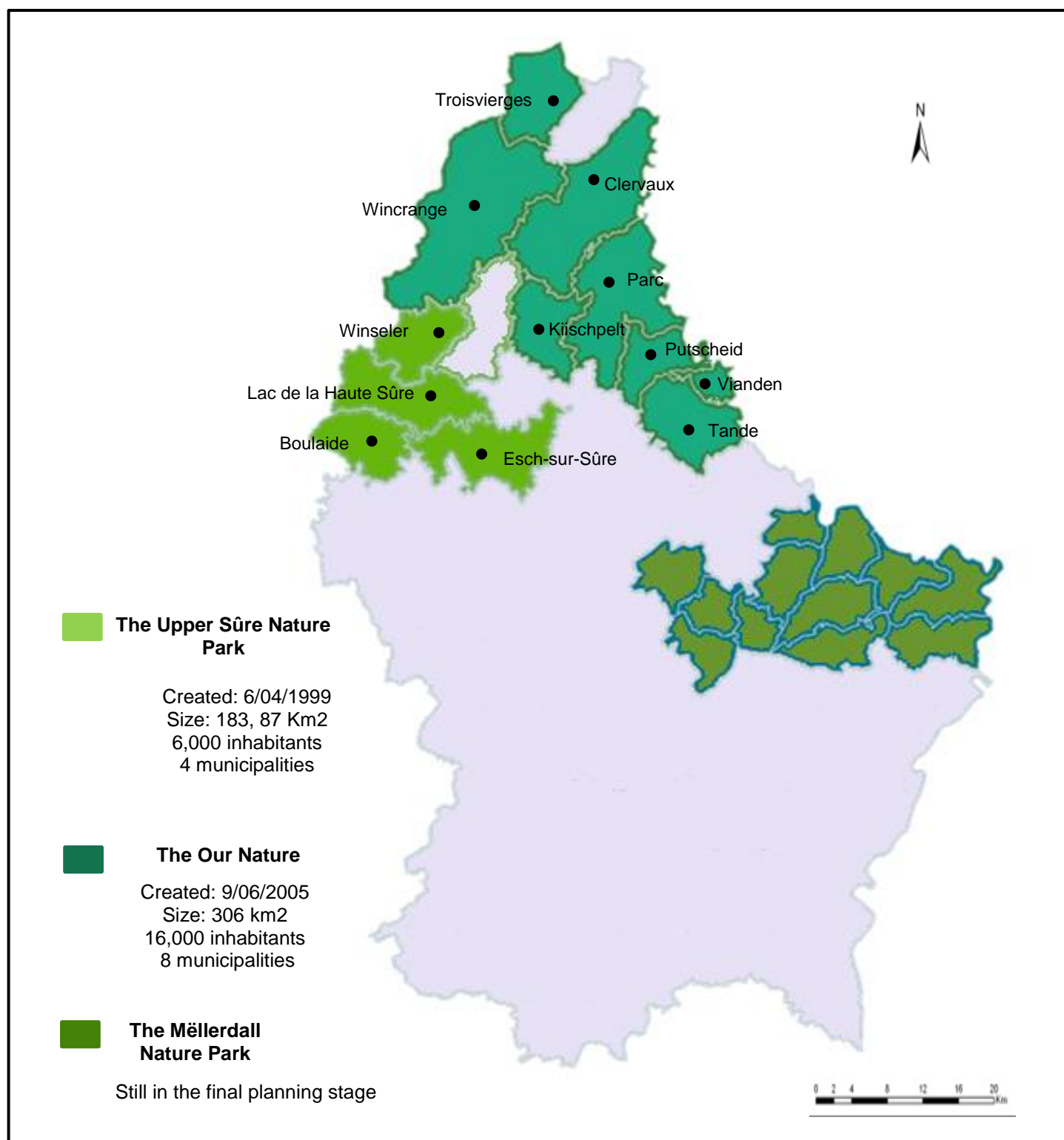
Figure 3: GDP, Employment and Unemployment estimate of Luxembourg



Source: STATEC (2015 b)

Apart from certain main towns (dotted red areas in figure 2 above), most of the rural areas have a population size fewer than 2.500 inhabitants. This explains why about 38% of the total population lives in rural areas which constitute 82% of the national territory. Nature Parks in Luxembourg are located in parts of these rural areas which, in recent years, have become attractive as places of residence for migrants from the urban centres, due to pretty land prices. It should be recalled that about thirty or twenty years ago, most of the rural areas in the North of Luxembourg (Nature Parks included) were affected by a general trend of outmigration. Many local residents were leaving the North for greener pasture in the South which, at the time had a very strong economy, backed by the steel industry. As such, the creation of Nature Parks in the North of Luxembourg could be seen a step towards revitalising the economy of certain rural areas. From this, officially, Luxembourg has two Nature Parks; Upper-Sûre and Our (fig.4. below), designed for integrating nature protection and other development functions, in projects of regional development.

Figure 4: Locating Nature Parks in Luxembourg



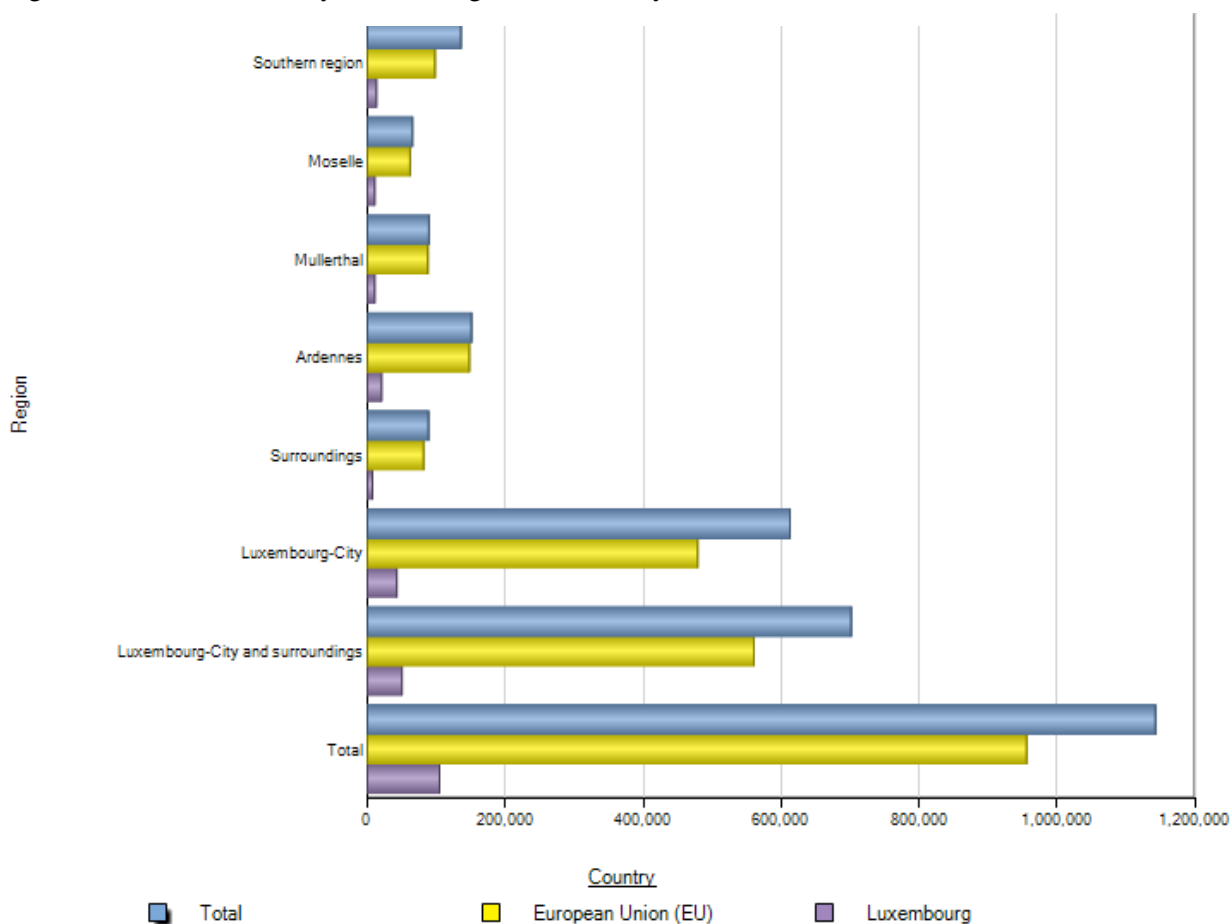
Source: Adapted from the Ministry of Sustainable Development and Infrastructure (Département de l'aménagement du territoire) <http://www.naturpark.lu>

The above initiative is evidence that national as well as local stakeholders in Luxembourg are strongly committed to realizing sustainable development in rural areas. The 2014-2020 Rural Development Programme (RDP), for example, underscores actions for restoring, preserving and enhancing local ecosystems, especially in sectors related to agriculture and forestry. The aim of the RDP is to promote economic development, social inclusion, poverty reduction and to enrich the environmental qualities of rural areas. So far, Nature Parks have been cited as potential instruments to foster this integrated policy in rural areas.

As highlighted above, the strength of the RDP is linked to certain sectors, such as agriculture and ecotourism. The relative importance of agriculture in Luxembourg has been decreasing in recent years. As such, the share of agriculture in the economy of Luxembourg is low, recording below 5%. That is 1, 0% for flows and stocks in 2013 (Service d'Économie Rurale, 2015). From this, it would be normal to doubt the importance of this sector in promoting opportunities for economic development in Luxembourg. However, looking at the sector from a different angle, it can be realised that small farms have been giving way to farms of 50 hectares and more. Most of these are concentrated in the Northern part of the country (location of the two Nature of Parks), including the banks of the Moselle, (Ministry of Agriculture, Viticulture and Rural Development.2015). Moreover, because park areas are predominantly agricultural, this activity remains central in the development of these regions. The agro-food sector for example (the primary sector for raw materials, the processing sector of agricultural products and the sector of services to the agricultural holdings), has a vital role in the economy of Nature Parks. This is more important given that parks in Luxembourg are located in rural areas, thus contributing to a better distribution of economic activities over the whole territory. Therefore, it will make sense to design important economic strategies for the agricultural sector in park areas.

As highlighted above, rural tourism is a complementary economic activity alongside agriculture in rural areas in Luxembourg. The Ardennes in the North and the Mullerthal region in the East represent major touristic nerve centres for rural areas in Luxembourg. Even though the number of tourists into these regions did drop by 0.8% and 17.8% in 2013 respectively (STATEC, 2014), the tourism sector still has important economic, social as well environmental role in the development of these regions. In park areas, for example, agrotourism is an important activity which is helping in building a social and ecological landscape that links tourists with farmers, local producers, including culinary sector. The bar below indicates tourist arrivals by touristic region and country of residence from 2011 – 2014 in Luxembourg. This provides an idea of the position of the tourism sector in the economy of park areas.

Figure 5: Tourist arrivals by touristic region and country of residence



Source: STATEC, 2014

From the above figure, it is clear that there is a strong competition between Luxembourg City, its surroundings and other regions such as the Ardennes and Mullerthal (Nature Park areas). For the reason that there is a rich touristic landscape in Nature Park regions, mixed with sustainable agriculture practices and local production units, it is necessary for stakeholders to develop alternative strategies that would improve local tourism and help sustain the economic situation these regions. Generally, the idea about creating Nature Parks is to optimally manage the different ecosystems (fresh water, forest and agricultural surfaces) found within these areas and to guarantee social and economic prosperity for the rural population. An attempt to provide an in-depth description of these parks could help improve understanding about the above claims.

2.2.The Upper-Sûre Nature Park

The Upper-Sûre Nature Park is located in the North-West of Luxembourg, near the Belgian border. It has an area of about 183, 87 Km² of which 50% is forested and 42% agricultural land. Together, the area has a population of about 6.000 inhabitants (Upper-Sûre Nature Park, 2014), regrouped in four municipalities; Winseler , Lac de la Haute Sûre, Boulaide and Esch-sur-Sûre (see Fig. 4 above), and consist of stakeholders from national and local level, to establish a strong participatory approach for regional development.

The idea about initiating this park came up around the 1950s, even though this was only concretely developed in 1989 by an inter-communal syndicate; SYCOPAN (Upper-Sûre Nature Park, 2008). The reason was to bring together environmentalists, planners, local farmers, members of the tourism board, certain state ministries as well as the local population, to discuss issues pertaining to local development. Of importance was the notion that those living and working in this part of the country are the ones responsible to bring development to

the region. A Nature Park was, therefore, a platform to assimilate key concepts related to bottom-up development and also a means to improve regional value.

As a main reservoir that supplies about one-quarter of household drinking water in Luxembourg, the priorities for this park are; to restore the quality of drinking water from the Upper-Sûre River; boost value creation through the use of natural and cultural resources as well as improving economic and social development of the region. Together with other stakeholders, the park strives for maximum long and short-term benefits for combining conservation and development priorities. Sustainable local production is a main activity promoted by the park. This is a means to improve traditional regional production systems. It is also intended to attract small and medium size enterprises, diversify agricultural processes, and also improve eco-friendly production and marketing. From this, the study seeks to empirically appreciate policies adopted for the Upper-Sûre Nature Park; to assess the above-highlighted objectives, in the context of the concept of green economy.

2.3.The Our Nature Park

The Our Nature Park was initiated by a local association in 1992 (SIVOUR - Inter-communal Syndicate for the Our Valley), as a means to represent the best interest of the region and beyond. As a result of the law of 1993 ratifying the creation of Nature Parks in Luxembourg, the idea of SIVOUR was formally translated to a Nature Park in 2005. The park covers about 306 km² with about 16,000 inhabitants and eight municipalities (Clervaux, Kiischpelt, Parc Hosingen, Putscheid, Tandel, Troisvierges, Vianden and Wincrange). Before the territorial reorganization of 2011, it had eleven municipalities. Stakeholders of the park have partnered to reconcile nature conservation and economic development of the region. As such, the Our Nature Park is a platform intended for sustainable development and as a quality label for regional products (Our Nature Park, 2014).

Moreover, the park anticipates providing additional economic incentives that will better the quality of life of the rural population and, which will take into consideration the interest of environmental conservation. The development aspiration of the Our Nature Park is mainly concerned with; conservation and restoration of the natural environment, and with promoting and guiding economic and socio-cultural development. This is intended to integrate local expectations with park's capacity to enhance employment and quality of life. The production of mainly foodstuffs and a few non-food items is at the centre of the park's economic activities.

Note that because the third Nature Park (Mullethal) is still in its final planning stage, the research matrix is limited within the two official Nature Parks. Therefore, information about development projects in the Mullethal has not been assessed as part of this investigation.

In order to properly understand the objectives guiding Nature Parks in Luxembourg, it is important to categorise them. As such, the following section provides information about the categories of parks in Luxembourg.

2.4.Categorising Nature Parks in Luxembourg

Protected area categories are simple techniques to identify different types of protected areas based on objectives (International Union for the Conservation of Nature- IUCN, 2012). This could be seen from table one with six different categories of protected areas.

Table 1 Categorising Protected Areas

Categories		Purpose
I	a	Strict nature reserve
	b	Wilderness area
II		National Park
III		Natural Monument or Feature
IV		Habitat/Species Management Area
V		Protected Landscape/ Seascape
VI		Protected area with sustainable use of natural resources

Source: Adapted from IUCN (2012)

According to the IUCN's scheme, category I systems are primarily meant for conserving regionally, nationally or globally outstanding ecosystems, species (occurrences or aggregations) and/ or geodiversity features. These attributes will have been formed mostly or entirely by non-human forces and will be degraded or destroyed when subjected to all but very light human impact. This category is mostly related to wilderness areas and its characteristics are not related to parks in Luxembourg.

Category II protected areas have as objectives; to protect natural biodiversity along with underlying ecological structures and supporting environmental processes, and to promote education and recreation. Areas in this category are typically large, reducing the possibility of Luxembourgish parks to fall under this scheme even though similar characteristics exist. Most national parks fall within this framework, including certain Nature Parks. This category goes again to highlight the importance of objective and characteristics in setting up protected areas. Note that it is difficult to provide cross-references for comparing the largeness of protected areas because of the variation of protected area legislation among countries in Europe.

However, it is certain that a 5,000 hectare Nature Park in Luxembourg is smaller than a 20,000 hectare park in Germany or France.

Category III protected areas are set aside to protect a specific natural monument, be it landforms, sea mount, submarine cavern, geological features (such as a cave), or even a living feature (such as an ancient grove). Generally, these are quite small protected areas, which often have high visitor value. The primary goal of this category is to protect specific outstanding natural features and their associated biodiversity and habitats. Like categories one and two, parks in Luxembourg are not also part of this classification.

Besides, Category IV is considered habitat management area. These areas are meant for conserving and restoring species and habitat. This is similar to the other groups mentioned above. Category V system is perhaps the most quickly developing of any protected area management approaches (IUCN, 2012). This is because it seeks to maintain current development practices, restore historical management systems or, perhaps maintain key landscape values whilst accommodating contemporary development and change. Nature Parks in Luxembourg relate to these in that, these are considered vital zones for maintaining direct and indirect connections of traditional and modern development strategies that could contribute to sustainable development in rural areas. Nevertheless, these aims might not be realistic if appropriate methods for managing ecosystem services are not applied (IUCN, 2012). It is, therefore, important to confirm such general assertions by using specific cases with multiple techniques for natural resource management. This will go a long way to appreciating the meaning of Nature Parks as instruments of regional development in Luxembourg.

Also, protected areas under category V are encouraging the interaction of people and nature over time, leading to an area of distinct character with significant values (IUCN, 2012). As

such, safeguarding the integrity of this interaction is vital for protecting and sustaining the area. The primary objective of this category is to combine protection and development through a mix of modern and traditional practices. Consequently, areas of this kind are supposed to provide opportunities for socio-economic activities and also acting as models of sustainability so that lessons can be learnt for wider application. This is central to the research idea, which strives to analyse the modifications brought about by Nature Parks, which could spearhead innovative ideas for the development of other areas with similar characteristics.

The sixth and final category is protected areas with the sustainable use of natural resources. They are usually very large and meant to protect natural ecosystems and use natural resources sustainably when conservation and sustainable use can be mutually beneficial. Other objectives of this category are;

- To promote sustainable use of natural resources, considering ecological, economic and social dimensions
- Promote social and economic benefits to local communities where relevant; facilitate inter-generational security for local communities' livelihoods and ensuring that such livelihoods are sustainable
- Contribute to developing and/or maintaining a more balanced relationship between humans and the rest of nature.
- Contribute to sustainable development at national, regional and local level
- Facilitate scientific research and environmental monitoring, mainly related to the conservation and sustainable use of natural resources
- Collaborate in the delivery of benefits to people, mostly local communities, living in or near to the designated protected area.

It is important to note that, concepts of protected area are changing due to structural changes affecting most rural areas. Consequently, protected area categories are liable to witness

spatiotemporal variations. According to the World Database on Protected Areas (WDPA, 2013), Nature Parks in Luxembourg fall within Category II of the IUCN classification system. That is large protected areas with objectives to protect natural biodiversity along with underlying ecological structures, support environmental processes and promote education and recreation (IUCN, 2012). Without contradicting this allusion, another argument put forth by IUCN (2012), made it clear that the boundaries between what is regarded and managed as, one category may change over time. Moreover, for the fact that Luxembourg's parks are not large (between 183 and 306 km²) in the literary sense of IUCN group two and based on present objectives for the development of these areas, the research considers categorising parks in Luxembourg within type V, although with certain features of type VI.

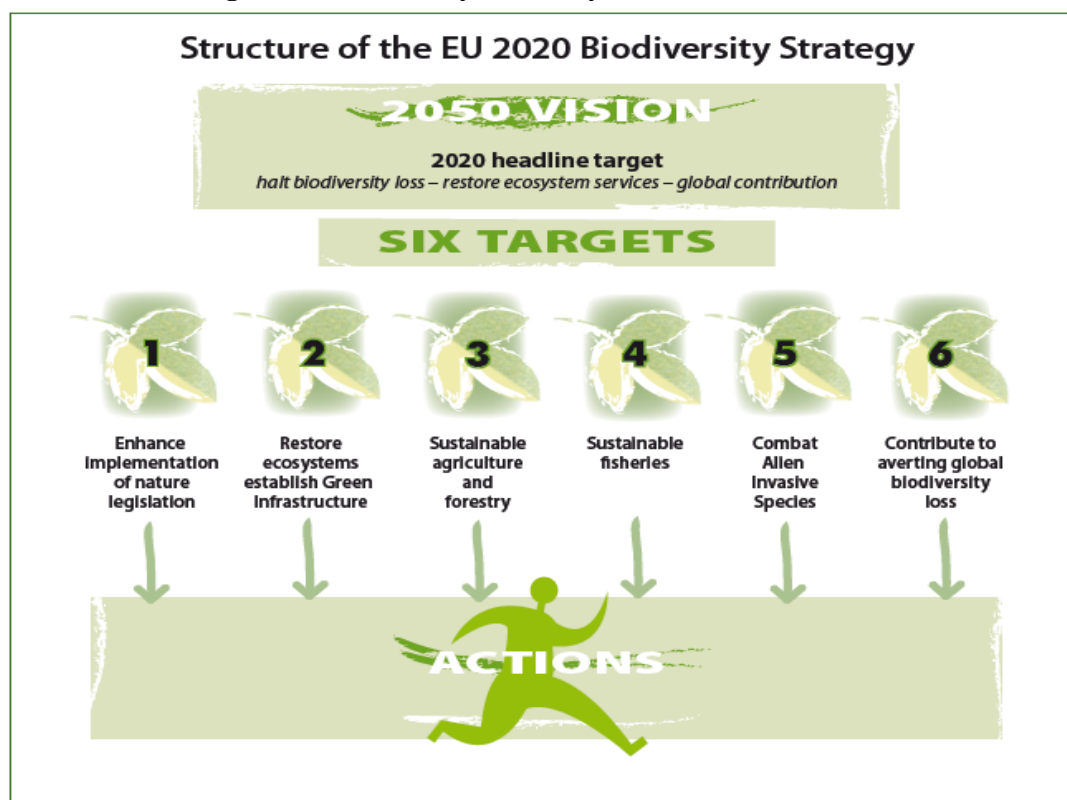
At the beginning of the first chapter, ecosystem services were described as the building blocks of any natural system, including parks in Luxembourg. As such, a description about the different ecosystem services found in these areas will increase understanding on the role of parks in regional development.

2.5.Ecosystem Services and Nature Parks in Luxembourg

Ecosystem services are the benefits humankind derives from the processes of the natural world. These include most obviously the supply of food, fuels and materials, but also some hidden benefits as the formation of soils, control and purification of water (European Academies of Science Advisory Council-EASC, 2009). These services are important in linking (wo) man and the environment and specifically on issues related to valuation of natural resource areas. Although this research is to an extent, not much connected with the monetary valuation of ecosystem services; however, it associates this general idea. That is, acknowledging that natural ecosystems are essential for human existence and their services should be treated with great concern.

Through the European Union's 2020 biodiversity strategy, some European countries including Luxembourg have been placing high esteems on improving the services of fundamental ecosystems. This can be seen from figure five below, where six targets have been identified as basics for protecting biodiversity loss and restoring existing ecosystems. In this process, nations have to improve knowledge about the importance of ecosystem services to the local economy. The point here is to increase understanding about the relationship between ecosystem services and human wellbeing. This is an important argument that links the concept of green economy with that of Nature Parks. That is, from a management perspective, Nature Parks harbour essential natural services and through carefully designated processes of economic development; these services can improve human wellbeing. The Millennium Ecosystem Assessment of 2005 makes stronger this notion by highlighting that people are integral parts of ecosystems and that a dynamic interaction exists between human and other parts of ecosystems.

Figure 6: EU 2020 targets for biodiversity and ecosystems restoration



Source: European Union, 2011

Relating the above diagram to this study, the concern is more on targets 1, 2 and 3. This is because parks in Luxembourg are presently guided by a legislation of which the aspects of ecosystem restoration and sustainable agriculture are major objectives. Moreover, the question is to understand how parks in Luxembourg contribute to these targets. That is the different approaches in park areas that would help in reframing the EU 2020 biodiversity strategy. This is important in appreciating how local policies are related to international platforms for sustainable development.

Additionally, in order to increase understanding on the dependence of societies on natural ecosystem, ecosystem services have been described as the conditions and processes through which natural ecosystems and the species that make them up sustain and fulfil human life (Daily, 1997). Similarly, ecosystem services are the goods and services that humans derived directly or indirectly from ecosystem functions (Costanza et al. 1997b). Functions in this logic refer to the capacity of natural processes and components to provide goods and services that satisfy human needs, directly or indirectly (De Grot, et al. 2002). This is similar to the idea of Daily (1997) mentioned above. Considering these notions, service and function are obviously interrelated; forming four varieties of ecosystem functions (De Grot, et al. 2002)

- *Regulatory*: the capacity of natural and semi-natural ecosystems to regulate ecological processes which in return, provide humans with essential services such as; clean air, water and soil.
- *Habitat*: the capacity of natural systems to provide refuge and reproduction habitat which assists in conserving and protecting genetic diversity.
- *Production function*: this includes phytochemical processes that help to provide food for humans.

- *Information:* This provides opportunities for reflection, spiritual enrichment, cognitive development, recreation and aesthetic experience.

The ecosystem functions marked above are products from complex environmental processes and they are responsible for the provision of goods and services that add value to the sustainability characteristic of an area (De Grot, et al. 2002). From these functions, one can start to imagine the importance of Nature Parks in Luxembourg, to those living around these areas. Therefore, it will be interesting to understand how stakeholders in Nature Park areas make use of existing services, to provide essential benefits to the local population.

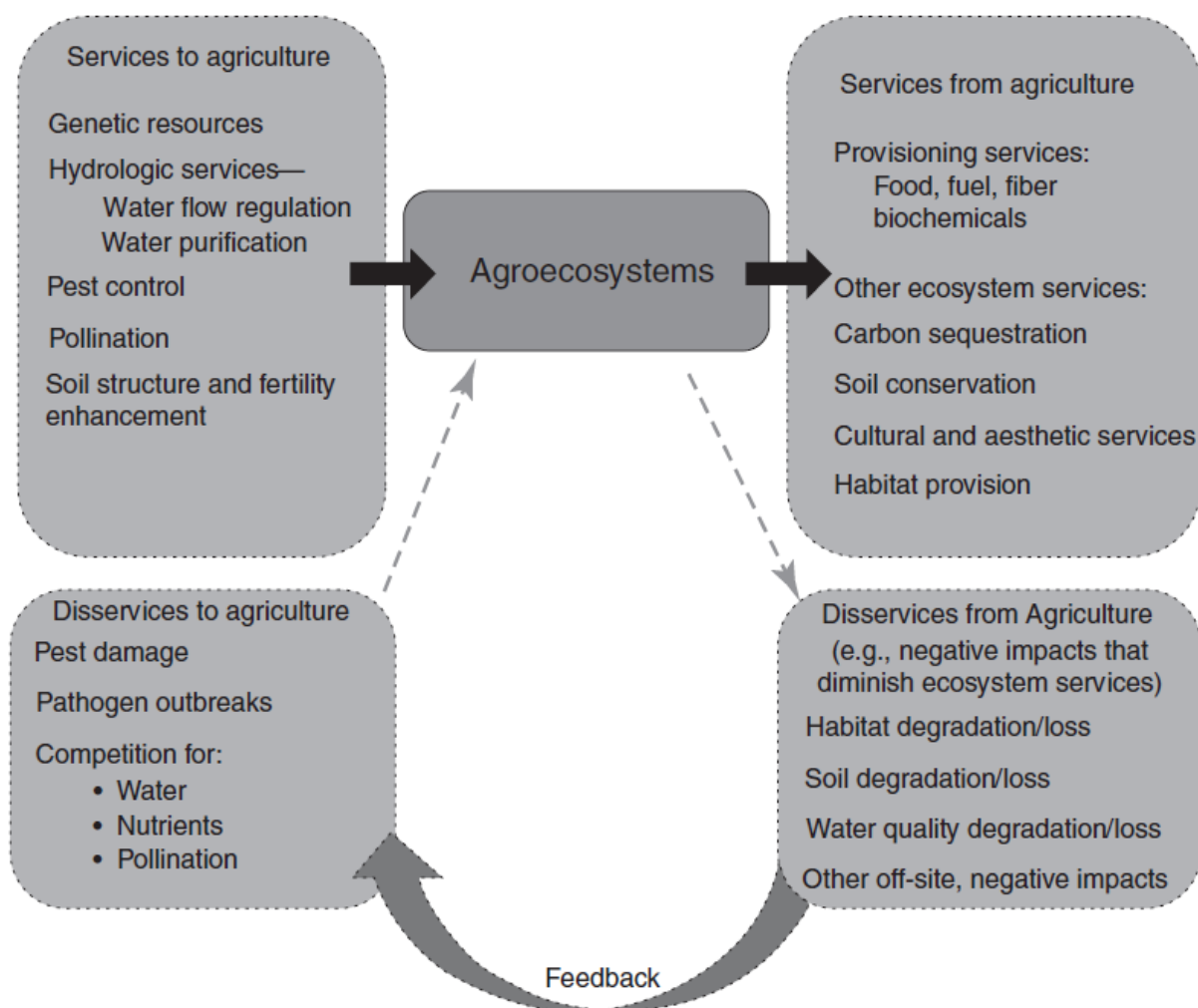
Like ecosystem functions, ecosystem services deliver four main categories of benefits which are basic constituents of well-being (World Resource Institute-WRI, 2005):

- *Provisioning services:* These are the products obtained from ecosystems such as food, fresh water, timber, and biochemical products.
- *Regulating services:* They are the benefits obtained from the regulation of ecosystem processes. They include among others pollination, air quality, water and climate regulations, as well as natural hazard regulation.
- *Cultural services:* These are the non-material benefits people obtain from ecosystems such as recreation, aesthetic, and spiritual, including knowledge and educational values.
- *Supporting services:* Their impact on human are indirect and take a very long time. Hence, they are mainly necessary for the production of all other ecosystem services. They may include services like such as soil formation, photosynthesis, nutrient and water cycles.

Considering the above explanations, it is evident that ecosystem services are fundamentally important components to generally analyse performances related to sustainable development

within and beyond Nature Parks. For the fact that agriculture is a predominant economic activity in park areas in Luxembourg, almost all the services mentioned above are vital for the smooth functioning of a regional agro-cycle. However, the management strategies to develop these systems will greatly determine the chances to provide needed services or disservices. Figure six below provides a representation, which might help increase understanding on the different agricultural ecosystem services that are found in the two Nature Parks in Luxembourg.

Figure 7 : The flow of ecosystem services and disservices



Source: Garbach, K. et al. (2010)

Generally, provisioning services are mainly reproduced for sale or use for direct consumption. Current market forces (through demand and supply) have now turned to accelerate greatly the

consumption and use of these services in most natural resource areas, causing serious trade-offs and a disequilibrium in natural cycles. Following this trend, efforts to improve awareness on the importance of stabilizing the entire ecosystem through the use of innovative concepts like green economy and tools such as Nature Parks is necessary. For this study, an in-depth discussion related to ecosystem services will focus on provisions such as raw materials for the production of food and non-food items in Nature Parks. Discussions will also cover aspects related to restoration or protection approaches of existing ecosystems. This is in order to explain the strength of parks in managing ecosystem functions for the development of a local green economy. After explaining the background of study and study area, it is also important to look at the state of the art literature on Nature Parks, green economy and sustainable regional development. This is important in subsequently analysing strategies in parks in Luxembourg.

CHAPTER 3: STATE-OF-THE-ART-REVIEW ON NATURE PARKS, GREEN ECONOMY AND SUSTAINABLE REGIONAL DEVELOPMENT

This chapter presents normative as well as analytical views from different contemporary sources, to make a synthesis of three main concepts guiding the research; Nature Parks, green economy and sustainable regional development. It builds on these thoughts to set a framework for analysing parks' strategies in subsequent chapters. Assuming that there is no one size fits all approach for explaining these concepts as combined units, a separate, but related review structure is necessary to complement the research idea and to make available a base for analysis in later chapters.

The chapter begins by highlighting a historical perspective of protected areas in Europe. This is meant to provide a general idea about the functional evolution of protected areas' policies. That is, to understand how protected areas have moved from places of leisure and preservation of nature to areas promoting sustainable integrated approaches. From this, the chapter further explains the strength of Nature Parks in shaping policies of regional development from the perspectives of three European countries (Germany, Austria and France), including some examples of best practices gathered from a wider horizon.

The chapter also deals with literature on green economy and sustainable regional development. Emphasis on this section relates to the integrated nature of the green economy concept. That is how it tries to simultaneously incorporate aspects of economic, social and ecological development in projects of sustainable development. A brief review on the concept of a region is also presented in this section, giving that regional characteristics are important spatial determinants for planning sustainable development.

For the fact that building a sustainable region depends on the actions of multiple stakeholders, the chapter also presents literature pertaining to natural resource governance. Particular emphasis is placed on participatory approaches. This is in order to subsequently understand stakeholders' actions in Nature Parks' development.

3.1. Viewpoints of Nature Parks in Europe

Protected areas have existed in Europe for thousands of years today (European Environmental Agency - EEA, 2012). From the unenlightened era to the end of the 15th century, protected areas were developed as spaces for hunting wild animals and for conserving individual lands. The idea of territorial protection or native conservation was further established in the 16th century. In this regard, landscape gardens around the homes of influential statesmen became visible in Great Britain by the 17th and 18 centuries. This painted a picture of protected areas as territories of beauty, and which was later on referred to as "Naturdenkmal -Nature Monument" by A. Von Humboldt (EEA, 2012).

It was only until the 19th and 20th centuries that private and public agencies started becoming interested in protected areas, with examples from Britain and Switzerland (see table 2 below, on changing views of protected areas in Europe). The changes in perception also led to the emergence of National Parks as new arms of protected areas, inspired greatly by the American model of the Yellow Stone National Park of 1892. In this esteem, Sweden created the first legalised National Park in Europe, while nature conservation parks (Verein Naturschutzpark) were later on developed in Germany (Mose, 2007), as well as bilateral Nature Parks between Poland and Slovakia. In concrete terms most and if not, all the protected areas that existed in Europe by the early 20th century were simply regarded as areas of natural beauty. As such, nature protection for aesthetic reasons was the primary motive for developing protected areas in Europe at this time.

Table 2: Changing Perception of Nature Parks in Europe

	As it was (19th century) Protected areas were:	As it is becoming (21st century) Protected areas are:
Objectives	<ul style="list-style-type: none"> – Set aside for conservation – Established mainly for spectacular wildlife and scenic protection – Managed mainly for visitors and tourists – Valued as wilderness – About protection 	<ul style="list-style-type: none"> – Run also with social and economic objectives – Often set up for scientific, economic and cultural reasons – Managed more with local people in mind – Valued for the cultural importance of 'wilderness' – Also about restoration and rehabilitation
Governance	<ul style="list-style-type: none"> – Run by central government 	<ul style="list-style-type: none"> – Run by many partners
Local people	<ul style="list-style-type: none"> – Planned and managed against people – Managed without regard to local opinions 	<ul style="list-style-type: none"> – Run with, for, and in some cases by local people – Managed to meet the needs of local people
Wider context	<ul style="list-style-type: none"> – Developed separately – Managed as 'islands' 	<ul style="list-style-type: none"> – Planned as part of national, regional and international systems – Developed as 'networks' (strictly protected areas, buffered and linked by green corridors)
Perceptions	<ul style="list-style-type: none"> – Viewed primarily as a national asset – Viewed only as a national concern 	<ul style="list-style-type: none"> – Viewed also as a community asset – Viewed also as an international concern
Management techniques	<ul style="list-style-type: none"> – Managed reactively within short timescale – Managed in a technocratic way 	<ul style="list-style-type: none"> – Managed adaptively in long-term perspective – Managed with political considerations
Finance	<ul style="list-style-type: none"> – Paid for by taxpayer 	<ul style="list-style-type: none"> – Paid for from many sources
Management skills	<ul style="list-style-type: none"> – Managed by scientists and natural resource experts – Expert led 	<ul style="list-style-type: none"> – Managed by multi-skilled individuals – Drawing on local knowledge

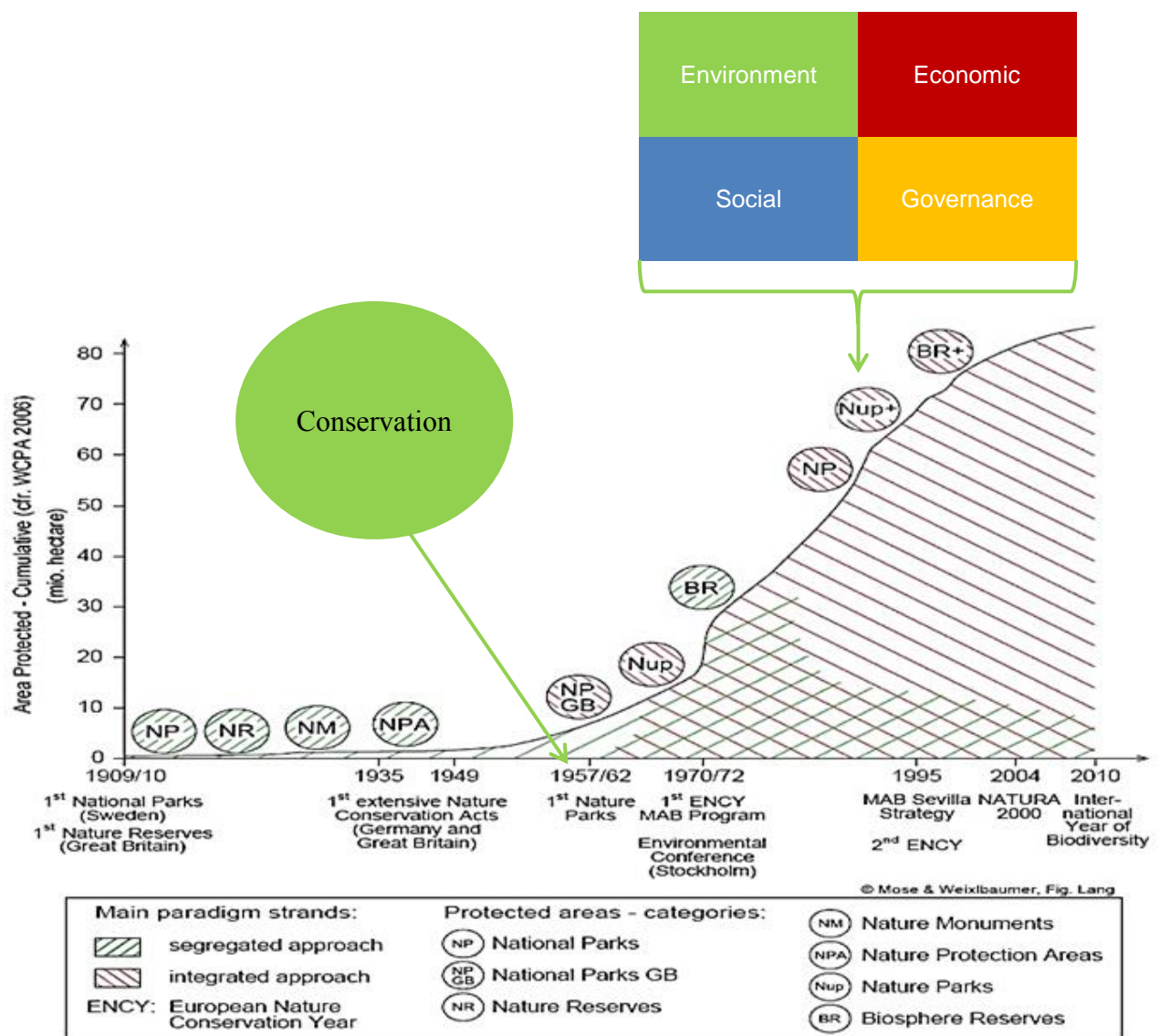
Source: Phillips, 2003, in EEA 2012

Increasing attention towards the importance of protected areas in improving well-being became prominent in the 1970s, urging planners, development agents, NGOs, academic institutions and politicians, to acknowledge that the value of natural areas are worth the needs of local communities and improving processes of participatory development. This has contributed in influencing a paradigm shift in present-day's protected areas policies, moving the concept of protected area to a more integrative form of development (Mose, 2007).

3.2. Present-day Views about Nature Parks

Since the 1950s, Nature Parks in Europe have been increasing with an integrated approach to development (Gamper, et-al, 2007). Figure seven below provides a clear picture of this notion.

Figure 8: Functional Changes of Nature Parks in Europe.



Source: Adapted from Mose, 2007

The notion of Nature Park differs among countries in Europe. This is due to variations in objectives and expectations, resource availability, size, as well as the legal policies related to

conceptualisation. As a result, formulating a universal definition for Nature Parks is not possible. To help reduce this problem, the International Union for Conservation Nature (IUCN, 1994 in Dudley, 2008) attempted to provide a concrete categorisation strategy which intends to make available a unique approach for defining, comparing, as well as merging protected areas with their objectives (see table 1 in chapter one above). Today, the categorisation method is widely used by concerned stakeholders to address issues of protected areas; set up innovative planning and development procedures and for determining performances (IUCN, 2012).

Protected area categories are forming an important global standard (Dudley, 2008) because they provide tools for planning protected area systems. It also encourages governments and other actors to develop systems of protected areas with a range of objectives according to regional and local circumstances. Categories also give recognition to different management arrangements and governance types. From this, it is easy to define a development trajectory for a given protected area based on its category.

It is certain that in most European countries as well as in Luxembourg, Nature Parks are located in rural areas undergoing complex structural changes (Mose, 2007). This is due to a decline in traditional agricultural sector and a complementary increase in new key activities, including small-scale niche for the manufacturing of food and non-food products and other business services (European Network for Rural Development- ENRD, 2013). These reasons are related to the case of Nature Parks in Luxembourg. That is, as explained before, one of the objectives for creating parks in Luxembourg was to help local areas seeking new paths for development.

Furthermore, as a result of their increasing numbers, Nature Parks in Europe could easily be considered influential features because of their potentials to advance the development of

marginalised rural areas. However, many conditions are to be met to claim this notion and assure parks as pulse generators for regional development (Mose 2007). Rural areas account for over half of the population of EU 27, producing about 45% of Gross Value Added (GVA) and account for about 53% of employment (ENRD, 2013). As such, protected areas are to be reflected in relevant concepts for regional development, financing and legal foundations at different sectoral levels (Mose, 2007).

Moreover, if appropriate measures are put in place to develop protected areas, it is possible to identify two levels of intensity surrounding the connection between Nature Parks and regional development (Hammer, 2007a). That is, a low intensity if parks are interested to contribute to regional development, in aspects such as; adding values to regional products; and high intensity if parks are willing to serve as instruments for directing regional development. It should be noted that, attaining a high-level initiative is not an easy task since parks must be adapted to the territory's institutional environment and given appropriate authority and funds. Presently, this goal could be made effective and easy if parks are positioned anew politically. For Hammer (2007a), it is, only with appropriate idealistic and financial support through proper management structures that Nature Parks can meet the presently high standards and become in reality model regions for rural areas and beyond. Therefore, it will be interesting to explain parks in Luxembourg in the framework of Hammers' view.

By creating networks, innovative milieus, learning approaches and regional cycles from the standpoint of sustainable development, the low and high-intensity functions of Nature Parks are conceivable (Hammer, 2007a). In so doing, parks should first consider the promotion of regional development as their main purpose with the aim to encourage ecological, social and economic dimensions of sustainable development; core principles from the stance of Nature Parks in Luxembourg. Also, parks should have the authority to become mediators in

coordinating activities between the region and with other regions, such as motivating and soliciting for support (be it financial or not). Finally, they should be able to make substantial contributions towards actors' participation on what, how, which as well as where to influence development. It would also be interesting to research these attributes in parks in Luxembourg.

Considering the functions highlighted above, parks could also be comprehended as instruments of regional development, cooperating and participating in regional economic cycles and maintaining traditional land use planning (Mose and Weixlbaumer, 2007). To accomplish these processes, there is a great need for appropriate engagement of different actors within and beyond the parks. In this circumstance, protected area management authorities would play a central role in facilitating and motivating different actors. In this same logic, the role of individual communes, or a group of municipalities should not be underestimated as this is necessary for inflicting political strength and enforcing the voice of the local people towards various initiatives organised by Nature Parks. Economic and political actors external to the park areas are also important in co-financing park activities and in designing demand and supply chains and the implementation of a brand for regional products. Following the above, the next sections complement present-day ideas about protected areas by describing the concept of Nature Park in the context of three European countries, beginning with Germany.

3.3.Nature Parks: Views from Three European Countries

3.3.1. *Germany*

In Germany, the Nature Park movement dates back to the year 1909 and parks are officially defined as large areas consisting mainly of legally protected nature reserves or protected landscapes that are especially suitable for recreation because of their natural beauty (German Federal Agency for Nature Conservation (Bfn), 2013). They have to be planned, structured

and developed according to the purpose of recreation and nature conservation, and to an extent reconcile conservation and other land use functions. The latter notion is similar to the idea of the paradigm shift in the functions of protected areas as explained by Mose (2007).

From a German perspective, the task arising from Nature Park model meet the demands of sustainability in the meaning of Agenda 21 (Federation of German Nature Parks, 2005); a background for integrating environment and development in decision-making, management and planning policies. According to the German policy, integrating ecological, economic and social factors is essential in providing a regional context for local Agenda 21, embracing several communities. As such, Nature Parks should develop a model landscape and become regions of sustainable development in rural areas. This is possible when parks support sustainable use and marketing of regional products and strengthens regional identity; participate in all planning activities related to Nature Park areas and cooperate with local authorities, public agencies and NGOs.

3.3.2. *Austria*

The case of Austria presents certain similarities to that of Germany explained above. In Austria, a Nature Park is a protected landscape created for the interaction of people and nature (The Nature Parks in Austria, 2014). Very often, it took many centuries for these landscapes to get to their current shapes, and they thus need to be conserved and maintained appropriately. Parks in Austria are importantly linked to the idea of conservation and used function as explained by Category V of the IUCN ranking system. For the fact that the legal intent of a Nature Park in Austria is the protection of landscapes in connection with other land uses, Nature Parks have as challenges; promotion of regional development through the creation of jobs and possibilities for additional income in tourism and agriculture, designing quality development for park areas, as well as creating a common market for local products.

A major objective of Austrian Nature Parks is to promote regional development in order to add value to, and to secure a quality of life for the population. The former is intended to promote the social dimension of sustainable development.

3.3.3. *France*

In France, Nature Parks are fragile rural areas of remarkable heritage, organised around a project that is designed for protection, economic and social development (Fédération des Parcs naturels régionaux de France, 2014). Precisely, the mission of French Nature Parks are to protect local heritage; implement economic and social development by supporting the local economy; to guarantee a quality of life and to participate in local spatial planning. These Nature Parks are references as they collectively express their willingness to promote inter-municipal partnerships for sustainable development. Consequently, the actions in these areas are shaped by four major principles; invest in a renewed relationship between heritage management and economic actions; give a greater voice to the local people; open and interact with external partners and regularly assess actions and reports.

Furthermore, in France, Nature Parks have the characteristics of a “territorial parliament”, facilitating and mobilising programmes that meet the aspiration of the local people. Acting as a parliament, parks have become references by evaluating public policies. That is, the evaluation of park activities is conceived as a process to demonstrate and communicate know-hows on issues of sustainable regional development.

3.3.4. *Relating Perspectives from the Three Countries*

Without any real comparison, there is an overlapping notion in the concepts of Nature Park as seen from Germany, Austria and France. Each country has placed a high value on integrated development which goes further to represent a contemporary shift in thoughts about Nature

Parks as tools for development (Mose, 2007). Through the promotion of an approach of mixed function, Nature Parks in these three countries have been encouraging a sort of qualitative development as a central pillar for attaining and delivering regional prosperity in rural areas.

In Germany like in France and Austria, attaining sustainable regional development in Nature Parks is a participatory process. The ideas of Nature Park in these countries represent an open system whose prosperity depends on certain incorporated mechanisms across different scales and levels. To develop quality regional products for example, will require the contribution of local farmers to maintain environmentally friendly methods of crop production; small and medium size enterprises for efficient transformation; regional distributors for proper marketing; external actors to attract demands and supply of regional products; effective political wills from and beyond the parks to support the initiatives of park areas; the local population to appreciate and contribute in developing local development. In concluding this section, it is understood that the attributes of integrated regional development, practised in Nature Parks in these three countries have contributed in qualifying the supposition put forward in this research. That is, the extent to which Nature Parks in Luxembourg are contributing to sustainable regional development is obviously related to the strategies meant for these areas.

3.4. Examples of best practices about Nature Parks' strategies

Examples of best practices on Nature Parks' strategies for attaining sustainable development could be seen from projects related to local businesses and products. In Switzerland for example, Parks have been trying to set forth regional examples, based on marketing of local products. The Thal Nature Park is an example in this aspect. It promotes regional labels of food and non-food products (Thal Nature Park, 2014). Precautions are taken to ensure that

labels are awarded only to products that are environmentally sensitive and with a certain degree of awareness about social well-being at the local level. In this case, products must be from within the park area and the raw materials involved should also come from within the region. Through this method, the Thal Park has experienced economic benefits in terms of sales quantity; given that sales have increased since the initiation of the park label (Thal Nature Park, 2014). This is a strategy that has helped in strengthening local potentials and as such, has contributed in improving economic and social conditions in areas that are weaker in structural terms.

The Styrian Nature Park Regions of Austria is another good example of social sustainability in protected areas. After eight successive years, this park just launched (May 2014) its ninth year of the project “job for the Styrian Nature Park”. In this project, twenty-one persons are employed each year for a maximum of one year to participate in the different approaches meant for developing the park region. Duties of the employees include among others; landscape maintenance, mentor exhibitions and public relation works in Nature Parks, as well as supporting and coordinating Park projects. This social approach is aimed at positioning and further developing four basic integrated pillars of the Nature Park; recreation, education, protection and regional development. Through these actions, persons employed in the Nature Parks are contributing to the further development of a “model region for sustainable development in rural areas” (Styrian Nature Park regions; 2014). Finances for regional projects are made possible by all participating Nature Parks, the Styrian body for scientific, environmental and cultural projects, including other project partners.

Another good example with goals for promoting sustainable regional development is from the Upper Palatinate Forest Nature Park, in the Bavarian region of Germany. A particular interest of this park lies on promoting sustainable regional development from quality and exemplary

approaches. Through this, the park sees itself as a modern instrument for regional cooperation. That is, the landscape model of the park is based on integrating ecological and economic strategies to improve regional welfare. As such, approaches of the park are not only aligned along the landscape and cultural processes, but also incorporate aspects of a natural space that reflects home and identity (Upper Palatinate Forest Nature Park, 2014).

Talking about identity, regional marketing is a great quality in this park. A quality label of the Upper Palatinate Nature Park conveys positive image; a vision that landscape and nature are the true wealth of the park area. Various quality food products ranging from meat, dairy, cereals, tea, honey as well as locally brewed beer, are found in this Nature Park. While some products are purely organic, some are guided by certain standards to address the question of quality. Generally, all basic raw materials, ingredients, composition of products, including processing and distribution are to a greater extent done within this park area. Regional identity is promoted through the exclusive use of a single label for all park products while advertising materials are provided free of charge to those producers willing to sell the name of the Nature Park region. Through the above strategies, Nature parks play a great role in promoting local businesses and products. In this German case, farmers are provided with environmentally sound marketing methods through regional trademarks. Regional identities have developed where such practices exist, offering farmers better income (Federation of German Nature Parks, 2005)

Still, in the line of product marketing, Nature Parks could support local businesses through the use of Unique Selling Proposition (USP). This is an economic or marketing tool that has as objective to provide local products with distinctive qualities, making them different from others within or beyond the local region (Chattered Institute of Marketing, 2009). With increasing competition among regions, USP can exhibit strength in regional comparative

advantage. The marketing strategy of the Swiss and German parks presented above is an example of USP. Another good example of Nature Park with a USP label is the Morvan regional Nature Park in France. Here, the USP known as “Le gout de l’authentique” have been attributed to different local brands. These permits easy localisations of the products and help consumers trace the region with ease (Parc Naturel Regional Morvan, 2014). According to this French park, a USP for all products provides information about conservation strategies that meet objectives of social and economic development.

From the foregone discussions, it is certain that Nature Parks are out to promote regional initiatives for sustainable development. This is because in all the cases presented, efforts are geared towards integrating ecological, economic and social principles of sustainable development. Nonetheless, the examples have provided limited details on the participatory processes for encouraging sustainable development; an important component for empirical investigation in this study. As underlined earlier, due to difficulties finding an all-inclusive theory that explains the notions of Nature Parks, green economy and sustainable regional development, each of these concepts have been reviewed separately. Efforts have been made to link the concepts wherever necessary. This leads to the next section that begins with a review of the concept of sustainable regional development.

3.5.Sustainable Regional Development in the context of Nature Parks

3.5.1. Regional Perspective of Sustainability

In order to fully conceive the idea of Nature Parks as tools for regional sustainability, it is necessary, to at least making clear the concept of a region from a planning and development perspective. This is because a common problem in regional research is to evaluate the impact of a given policy (Cremer-Schulte and Dissart, 2013).

Protected areas have often been perceived as beneficiary only to nature and biodiversity with their effects on regional development frequently neglected (Jungmeier, et al. 2006). To this effect, planning protected areas like Nature Parks has become one of the most extreme processes in any modern development approaches, since it has to take into consideration all dimensions of sustainable regional development. This extremity might be because the concept of a “region” in spatial planning literature has been a subject of immense debate for many years with no specific definition of what constitutes a region. Focus in this section is not on defining a region, but to highlight certain common assumptions that could be identified in different geographical thoughts. This is in order to get a clearer link between notions of a region with that of sustainable development.

Assumptions about a region are related to specific characteristics that make an area different from others. Consequently, factors related to the economic, social, ecological and political situations of places, at a particular time are commonly cited. These are the main features which have been used to explain regions in relation to areal differentiation; a framework to spatiotemporally define and differentiate places. In a related sense, therefore, what are the features that make Nature Parks in Luxembourg different from other areas? One can think of economic, social, environmental or even governance attributes. Today, specific regions are perceived having an increasingly important role for promoting sustainable development. This is justified by the important role regions have as intermediaries between national and local levels and secondly by the growing consensus that sustainable development is an essential criterion within future regional development (Clement, et al. 2003).

Even though the regional concept has been criticised for oversimplification, too descriptive and lightly quantitative, it has gained important positions in development studies in recent years due to its strength to explain complex and general issues. The concept uses overlapping

contents from social, economic, environmental and governance strands of development to illustrate important issues about sustainable development (Schleicher-Tappeser, et al. 1997). Consequently, regions are an important framework for orientation; source of identity and a place where necessary changes in policy could be communicated and implemented in a specific context. It is from such analytical standpoint that the research questions the importance of Nature Parks in Luxembourg as platforms for regional development.

3.5.2. Context of Sustainable Regional Development

From the Stockholm Conference on the environment in 1992 to the Rio plus 20 on green economy and poverty eradication in 2012, sustainable development has been (re)emphasised as a major concept for intergenerational prosperity. The goal of this research is not to dig deep into the meaning of sustainable development which already has a well-established literature in many international, national and local policy documents, including other analytical texts on the subject. Rather, the study has acknowledged the importance of the concept in current debates connected to essential principles for implementing actions towards land use planning in the context of natural resource development. Sustainable regional development is an important concept that integrates sustainability ethics into mainstream regional development practices (Clement, et al. 2003). That is, it embraces all activities and instruments that promote sustainable development within regional initiatives. Linking this idea to the case study areas, one could question the extent to which Nature Parks have emerged as regional structures to further increase awareness and push forward local and national aspiration about sustainable development.

Sustainable development is an important concept, incorporating some important regional qualities in the development literature of Luxembourg. This is visible in the National Spatial Planning Programme. In this plan, there is great concern to ensure sound development of

natural resource and biodiversity areas and to support economic efficiency without losing sight of the social purposes of development (Ministry of the Interior and Spatial Planning, 2005). According to this programme, it is essential to curb unsustainable practices which over the past thirty years have led to significant increase in biodiversity loss in Luxembourg. One of the reasons related to this loss is the overuse of land surfaces for agricultural production. This point relates us back to the EU 2020 biodiversity strategy explained earlier in this section. It highlights the importance of local/regional strategies for biodiversity conservation in Luxembourg.

Also, “Rural region” in the National Spatial Planning Programme of Luxembourg represents areas that promote diversification of local economic activities according to the approach of sustainable development. This explains a multifunctional region of two or more municipalities with similar natural resource potentials, co-operating to seek parallel solutions regarding issues of sustainable development. This is a clear example that links notions of a region with that of sustainable development.

The idea of integrating socioeconomic and ecological development, as mentioned in the National Spatial Planning Programme, reflects key features of the concept of green economy. From this, it can be argued in favour of the idea that green economy is a path through which regional sustainability could be attained. The following section looks into this statement and makes clearer the bonds among green economy, Nature Parks and sustainable regional development. Before making a thorough review of the concept of green economy, it is important to distinguish the idea from similar notions such as green growth. This is because both concepts are widely used in discussions related to sustainable development.

3.6. Green Growth

The term “green growth” emphasises an economic strategy based on fostering economic growth while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies (OECD, 2011). This notion is tightly linked to the tensions between growth and other dimensions of development (Jackson, 2009). Growth is a quantitative increase in physical scale while development is a qualitative improvement or unfolding of potentialities (Daly, 1999 and Jackson, 2009). As such, green growth is more related to business as usual in the sense of neoclassical economics, although environmental sustainability is part of its strategies. In a more integrated manner, green economy rather addresses a reordering of the pattern of production and consumption to improve social welfare and reduce environmental degradation. Green economy emphasises a redefinition of economic growth in a more qualitative way with a focus on people’s needs and concern (Latouche, 2010). That is, a reasonable use of environmental resources to organise production and consumption according to tangible needs without limiting individual/collective happiness or wellbeing. The research, therefore, makes use of this idea to analyse the extent to which Nature Parks influence a qualitative regional economy. That is, to concretely explain the strategies for managing park areas in relation to new methods of production and consumption of regional goods.

3.7. Green Economy

Recent years have seen the emergence of a range of closely related concepts in the field of sustainable development, notably the Green Economy. It is linked to the natural capital by the healthy planet principle which campaigns for investments in natural systems and the rehabilitation of those that are degraded (Ten Brink et al. 2012). This section examines certain normative and analytical views about the concept of green economy. It discusses the literature

with emphasis on meaning and characteristics, going beyond ecological considerations to include other socio-economic and governance implications in the perspective of Nature Parks.

Human activities no matter how big or small they might be, are having a significant influence on how the earth systems work. This has recently been referred to as the Anthropocene; an epoch where human actions are increasingly altering the earth's biogeophysical processes beyond the regenerative capacity of natural forces. Certain challenges linked to biodiversity loss and climate change, water scarcity and the most recent global economic crisis of 2008 are some of the revelations of the harmful effects of contemporary investment models, which are linked with various unsustainable patterns of production and consumption. To overturn this trend, policy makers have to advocate for strategies that will transform current principles of economic growth; adapting sustainable values to production and consumption at all levels. In this regard, as a means to bridge the gap between extreme material wealth, environmental scarcity and social disparity, the economic paradigm of green economy has emerged as a policy tool, to push forward the notion of sustainable development (UNEP, 2011).

A green economy has been defined by the UNEP (2011), as an economy that results in "improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities". Explanations on this definition continue to mention that the development path of any green economy should invest, maintain, enhance and when necessary, rebuild natural capital as a critical economic asset and source of public benefit. Therefore, investment policies for a green economy should promote ecological resources and services such as biodiversity, agriculture, biofuels and water. These are all opportunities for economic and social development rather than costs (ESCAP -Economic and Social Commission for Asia and Pacific, 2012). For the reason that the concept recognises the importance of natural resource areas and emphasises aspects of ecological, economic and

social development, the research has incorporated UNEP's description of green economy as a working definition for analysing the role of Nature Parks in attaining sustainable regional development in Luxembourg.

The research reflects on green economy as an integrated concept that seeks to eliminate trade-offs in current economic development policies and suggest possible pathways for combining economic, social and environmental strategies. The term green economy is by itself telling about the economic and environmental dimensions of sustainable development, emphasising that economic prosperity could be attained without damaging existing ecosystem services.

It appears that policy decisions are now shifting towards appropriate means of promoting sustainable practices that will manage the earth's limited resources without reducing desires or want, in order to improve human prosperity. In this wise, the concept of green economy has resonated as an important policy platform for all types of advancements related to sustainable development. Debates related to strategies for greening economies are most often placed on; where, what, why, how and for whom. This notion is not as new as we might think. It dates back some forty years ago (Le Blanc, 2011), surely around the 1970s when the concept of "limit to growth" was first suggested in the Club of Rome (Meadows et al. 1972). The IUCN in 1980 highlighted the importance of integrating environmental principles in subjects of economic development (IUCN, 1980). However, this message did not travel great distances, simply because many parts of the developed world at that time were fresh from embracing the advantages of the free market economy, including those of globalisation. Ten years after the IUCN's signal, the famous "Pearce Report" on "Blueprint for the Green Economy" intensified the notion for an integrated policy platform for socio-economic and ecological development (Pearce, et al. 1989, Pearce and Barbier, 2000). Their calling was not only taken into consideration, but sparked important debates in many European countries, which by this

time were aware of the effects of economic growth on the environment and humans, brought about by unsustainable approaches of production and consumption. Presently, the importance of green economy as a paradigm for promoting sustainable development is being debated amongst individuals, researchers, institutions and policy makers, paving a way to question the circumstances under which a green economy have to take place (Le Blanc, 2011). Answers to such questions are hidden in researchers. As earlier explained in the opening chapter, this study will seek to provide understanding on how Nature Parks could be platforms for promoting green economic strategies in rural areas.

Sustainability has become a new ambition for planners, as well as more broadly among policy-makers who are aiming to improve living conditions in their communities (Nijaki, 2013). That is, sustainability now represents a fundamental shift in addressing development concerns and for fostering decisions aimed at improving the quality of life. As a subset of the sustainability approach, the green economy seeks to change the way development is viewed by re-predicting discussions about economic development through better quality and a more equitable distribution of life. Moreover, as far as the United Nations Research Institute for Social Development-UNRISD (2012) is concern, social dimensions of green economy underpin the processes required for moving towards development policies that are inclusive, equitable and sustainable. This aspect is also very important when addressing the objectives of Nature Parks in Luxembourg.

Moreover, Boons (2011), discusses the green economy as a complete and helpful approach for designing policies related to social development. That is, current economic systems are not inclusive in two ways; economic growth, though it raises living standards, often increase inequality within the society and its production chain have weaknesses in relation to its environmental impact. Consequently, the green economy is concerned with the many ways

our economic system through competition has tapered social disparities on a national scale as well as other inevitable environmental tensions (Cato, 2009). These are important attributes that could be applied to analyse how Nature Parks are influencing social development through quality economic and ecological strategies.

Also, the economic paradigm of greening the economy, against the background of multiple crises and accelerating resource scarcity is gaining paramount prominence in sustainable regional development processes (Pearce et al. 1989). Like many other pathways for attaining sustainability, the core principles of the green economy concept; valuing natural assets correctly; investing in natural capital and actions that would integrate economic, social and environmental benefits simultaneously, were already articulated some forty years ago (Le Blanc, 2011). In as much as the concept seems to push forward what has been done partially without inventing an existing wheel, green economy is not a substitute for sustainable development. Rather, the concept projects a growing recognition that achieving sustainability rests on getting the economy right (UNEP, 2011). As such, the extent to which Nature Parks will make right the economy of local areas in Luxembourg, in the sense of green economy will depend on the quality of the strategies put in place to boost local development.

Furthermore, the notion of green economy is specific in that it connects development initiatives of economic and environmental policies for the purpose of sustainable well-being (Costanza, et al. 1997a). As such, it is an implicit approach that engages policy makers with other actors on how to compare alternative approaches for realizing sustainable development (Downs, 2011). Consequently, participatory development is an important component of the green economy. It involves sectors or agencies that encourage innovative processes of sustainable transformation, away from the approaches of economic growth that leads to ecological depletion and social disparity. Participatory processes will be discussed in

subsequent sections. However, sectors indicated above are related to those conditions and policies in which the role of state and other stakeholders is effective as drivers for sustainable development. Therefore, it would be a unique opportunity through this study to examine how stakeholders cooperate in order to promote green strategies in Nature Parks in Luxembourg.

Furthermore, generally, the economy of Luxembourg has been in recent years witnessing increasing economic boom and the green economy is particularly important for countries undergoing such conditions (Zhou, 2011). That is, the approach is out to check the failures of the free market system and to provide adequate incentives particularly in the European context, to guide policy makers on how to organize economies in a way that will fit long-term social and ecological prerequisites (Steurer, 2011). It, therefore, tries to reinvent economies for a better handling of problems related to sustainable development. This is evident as the concept provides a platform to link economic, environmental and social considerations of sustainable development in such a manner that long-term economic development is achieved by investing in environmentally friendly and socially equitable solutions. This is an important viewpoint as the study seeks to know how Nature Parks encourage long-term economic activities that are oriented towards protecting the local environment and improving social welfare.

Furthermore, with the recent economic downturn, a green economy calls for greater investments in strategies that will bring the prospects of sustainable development one step closer to realization (Huberman, 2011). In complement, it is an approach that seeks for another way to ask of what the ecology can do for an economy, especially as the economies of most nations are now facing some problems with little successes (Grand-Ortiz, 2011). Therefore, it is a powerful tool whose methodology is to promote green sectors based on ecological approaches of territorial planning and must address other issues related to the

overall scale of the economy. The research seeks to know in this section if strategies in Nature Parks are helping to improve the economic conditions of local areas in Luxembourg.

Considered as the “next big thing” by Halle (2011), a green economy includes products, processes and services that reduce ecological impact and improves natural resource use (Chapple, 2008). It therefore, comprehends both new and traditional sectors of economic development that recognises the introduction of innovative and cultural products, as well as marketing strategies, for the purpose of creating new values (Chapple, et al. 2011). To fully understand these views, it is necessary to explain the extent to which Nature Parks in Luxembourg blends traditional and modern approaches of production and how local producers react towards promoting regional diversification, including the role of actors in managing the overall development pattern of park areas. Generally, the idea is to appreciate how Nature Parks are promoting value creation in local areas.

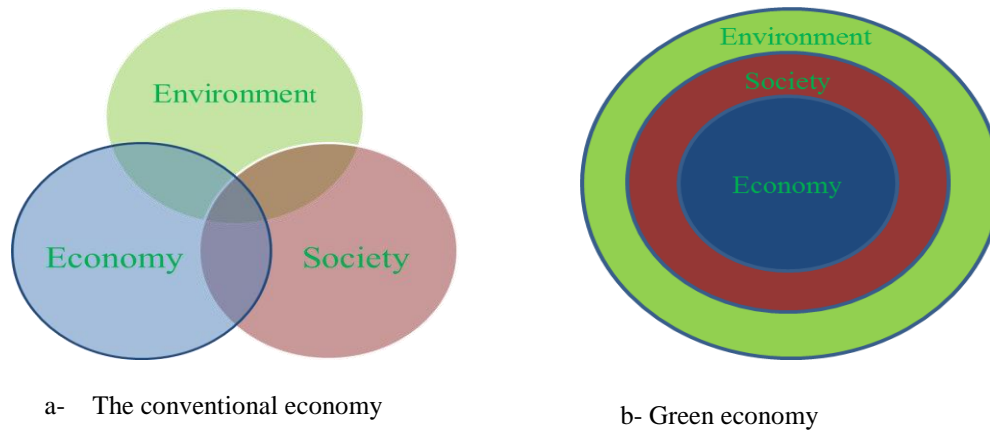
Also, Latouche (2010) discusses the green economy in relation to “soft development or degrowth”, which does not mean a reverse in wages or GDP, but rather a question of rebuilding new cultures that reduce the statistical rise in material production and consumption. For Latouche, investments should focus on themes which does not involve degrading the environment irreversibly and which are regarded as most desirable and satisfactory. In this light, he recommends the eight “Rs” as important ethical qualities for societies aiming to push forward the goals of the green economy in the framework sustainable development. That is; revalue, re-conceptualise, restructure, relocate, redistribute, reduce, reserve and recycle. Consequently, green economy has to be defined in terms of value, quality not quantity, regeneration of livelihoods not accumulation of wealth, clean not modern, about environmental friendliness not sophisticated tools (Tambunam, 2011). For the fact that the green economy is more about learning new lessons, the notion of Latouche (2010) is very

important as it calls to mind questions about how, what, when, where and how to produce and consume. In reflection, therefore, the thesis will want to understand if Nature Parks are a sort of “learning/teaching region” for sustainable production and consumption, using the example of certain food and non-food items.

Besides, certain theoretical notions about the green economy consider the current economic system as a subsystem of the ecosystem (Daly and Farley, 2010). That is, a green economy argues that society should be embedded within the ecosystem while markets and economies are social constructions that should respond to environmental priorities (Cato, 2009). From this, green economies are different from neoclassical economies (Cato, 2011). In effect, it is a new paradigm in which material wealth is not delivered perforce at the expense of growing environmental risks, ecological scarcity or social disparity (UNEP, 2011).

Following the above perspective, green economy is different from past efforts to attain sustainable development (World Resource Institute -WRI, 2011). This could be due to the fact that there is growing recognition that humanity is slowly, but surely, consciously or unintentionally, becoming a factor of “determinism”. That is, the various unsustainable processes of production and consumption empowered by contemporary society are fast changing the planetary systems, including living conditions. As such, transitions to a greener economy will need a shift in thinking about growth and development, production and consumption habits, and also political economy and decision-making (World Resource Institute, 2011). In this direction, the belief of trading off environment and economic development is out-dated, recognising a post-modern way of thinking about the earth as close system (see figures below).

Figure 9: Green Economy in the Context of Convention Economy and the Green



Source: Adapted from Green Economic Coalition, 2011

Source: Adapted from Cato, 2011

Figure 8 (a) portrays a conventional economy in which the relationship among the trio of sustainability is a framework of intersecting processes. In this system, it is very obvious to expect lapses, as each unit in the system has the ability to greatly act independently of the others. For example, the economic system can decide to expand (growth) to infinity contrary to societal and environmental expectations and likewise. This has been the cause of the many challenges faced by contemporary development approaches, which are guided by neoclassical economic policies. For the fact that all the systems in 8 (a) are independent and because the society decides independently on what, where, when, which and how the economy would progress, there is a tendency to minimise some important environment concerns, since environmental processes are sometimes considered as limitations to excessive economic growth.

Contrary to figure 8(a), figure 8(b) clearly rationalise the concept of the green economy as an economy that operates within social relationships and the whole of society is embedded within the natural world. In this respect, the social and economic processes have to recognise certain boundaries in order to have a balance with the forces of natural regeneration. This might only be possible through an appropriate governance system were numerous actors from

different levels are encouraged to implement sustainable approaches. It will be interesting to see how this study will explain the strategies of Nature Parks in relation to figure 8 (a) and (b).

From the above discussion, green economy is, therefore, a new development model which seeks improve the link between economic styles, social values and the environment, to provide recommendations for policy makers. Accordingly, economically possible and politically acceptable solutions could be found on the green economy concept because it respects the planet's social and ecological boundaries (Pirgmaire, 2011). Consequently, a green economy recognizes the value of, and invests in natural resources through the so-called ecosystem services whose economic invisibility thus far has been a major cause of their undervaluation, mismanagement and ultimately resulting a loss. Therefore, establishing certain values on these ecosystem services is a fundamental part of the green economy (Irish Environmental Network-IEN, 2012). This is related to the aim of the research, to explain Nature Parks as places of value creation. The provisioning ecosystem services in the production food and non-food items could be a guiding tool for this analysis.

In addition, the concept of green economy is an all-inclusive platform to combine economic, social and environmental development (Ocampo, 2011). Consequently, this study will examine if policies initiated for achieving sustainable development in Nature Parks in Luxembourg also reflect on integrating the above sectors. This can raise important discussions about which recommendations are necessary for subsequent schemes designed for the development of park areas.

Furthermore, a major concern reflected by the green economy is the need to stimulate job creation (Rasmussen, 2011). In other words, its impact on the labour market, especially in rural areas, should not be underestimated, as the production of artisanal goods, in particular,

has become a key element in rural development. This is because rural areas are gifted with natural resources and are potential producers of products to support economic development beyond their boundaries. This notion can be appropriately investigated using the case of Nature Parks in Luxembourg. This is because these areas harbour resources that could be used to produce results that will project regional excellence in terms of social and environmental sustainability.

The green economy is also concerned with mechanisms for measuring progress towards sustainable development in any given local economy. Through this approach, the green economy is considered more, as a vehicle to deliver sustainable development than a direction itself. That is, the concept relies on indicators needed for the achievement of sustainable development (UNEP, 2011). From this, the research understands that certain local indicators would be useful for learning the importance of Nature Parks in Luxembourg. As such, it will be important to know if indicators are used to monitor the sustainability performance of parks areas in Luxembourg.

Forgone paragraphs have mentioned actors' networks as important attributes for realising the objectives of sustainable regional development. As mentioned earlier, it will rather be unfair to conclude this chapter without mentioning the importance of participatory practices (governance processes) in achieving a green economy. This is because an appropriate governance approach will act as a guiding principle to strengthen ties on the objectives of sustainable regional development in Nature Park areas as a whole.

3.8. Natural Resource Governance

In quest to complement the integrated pillars of sustainable development discussed above and to stay in line with the research objective, it is important to understand certain theoretical aspects of resource governance.

The concept of governance has gained remarkable popularity within social science disciplines, used mainly to explain patterns of interaction between stakeholders at local, regional, national and international levels. While its origin stems from political science, the concept has taken a multidisciplinary turn, with intense application in contemporary studies in economic geography. Even though the governance concept has been interpreted fairly differently by other disciplines, the focus is virtually the same. That is, governance describes a change in the meaning of government, referring to a new process of governing or a new method by which society is governed (Rhodes, 1996). It refers to set of institutions and actors that are drawn from, but also beyond the government (Stoker, 1998). The concept has become a recurrent theme and a policy tool for framing important decisions of spatial development, generally involving a network of multiple sets of actors. (Brenner 2004; Davoudi, et al. 2008; Stoker, 1998). . Related to natural resource areas like Nature Parks, the concept stresses on how to enable local population take over control of their resources as a means to improve local empowerment, social prosperity and sustainability in general. Concretely, resource governance can be understood as the interaction among structures, processes and traditions that determine how power and responsibility are exercised, how decisions are taken and how citizens or other stakeholders have their say in the management of natural resources including biodiversity (IUCN, 2004). As such, how we decide and who gets to decide on issues affecting natural resources often determines what is decided upon (World Resources Institute, 2004). That is, natural resource governance is concerned about who decides the fate of ecosystems or who manages nature. It follows, therefore, that resource governance is about

how resources are utilised; how problems and opportunities are evaluated and analysed; what behaviour is deemed accepted or forbidden as well as rules and actions that are applied to affect the pattern of resource use (Juda and Hennessey, 2001). Consequently, the concept of governance is critically important in managing human behaviour in accord with the natural world.

Also, natural resources are not just valuable economic resources; they are also political and social resources at all levels (local, national and international) where actors compete to gain access, control and benefits. How these struggles are played out and resolved, and who ultimately benefits from them, lies at the heart of natural resource governance (IDL group, 2013). Related literatures have been explaining natural resource governance in the context of environmental governance. That is, a governance strategy comprising rules, practices, policies and institutions that shape how humans interact with the environment (UNEP, 2010). Consequently, it has to take into account the role of all actors that impact a natural resource area; from governments to NGOs, the private sector and civil society. For the fact that it is overwhelmingly challenging for governments to single-handedly decide the outcome of natural areas, the aspect of collaborative governance is crucial in framing policies for resource areas.

Collaborative governance involves participatory processes in which stakeholders' co-produce goals and strategies and share responsibilities (Althea and Rehema, 2012). Cleaver (1999) insists that collaborative governance as a participatory approach to development, should be subjected to greater critical analysis, particularly due to two key features; the role of institutions and models of individual actions. This notion is very important as institutions and individuals form a major network of actors in parks in Luxembourg. The question is on how these groups collaborate for the development of a region.

Moreover, social sciences are faced with developmental questions that sometimes depend on cultural context and the logic and behaviour of stakeholders (D'Aquino, 2007). This therefore resets the call for better methods to involve stakeholders in ongoing dialogue involving their future. In this case, participatory governance should be restricted more specifically to methods of producing knowledge of complex situation that associates actors in the system in question with the production of that knowledge. This should be without social goals as some social factors might be unattainable.

3.9. Conclusion

The increasing concern over demand for ecosystem services to satisfy basic human needs have necessitated major reforms designed to support best practices for sustainable development. The concept of green economy from contemporary literature presented above have been thought of as a catalyst for renewing policies of sustainable development at local, regional, national and international levels (UNDP, 2011). Relating the notions of Nature Parks to those of green economy and sustainable regional development is far too important in conceptualising Nature Parks and understanding their roles in promoting strategies for sustainable development.

This chapter has shown that concepts of Nature Parks, green economy and sustainable rural/regional development are integrated models sharing certain consensus. Combining social, economic and environmental principles/objectives without greater convergence on the economic side of the development spectrum is an important meet point amongst these thoughts. The three concepts argue away from mainstream development approaches that lead to certain unsustainable trade-offs. The notions are thought to provide a more balanced form of development in which aspects of participatory governance processes is understood for promoting local development.

An ecological notion of the three concepts lies on land use planning for conserving natural resource areas. Increasing emphasis is placed on how to protect biodiversity in conjunction with other objectives of local economic and social development. Mose, (2007) has tried to stress this relationship in terms of paradigm shift in protected areas in the twenty-first century; a new question about what the ecology can do for regional economies (Grand-Ortiz, 2011).

As for the economic dimension, the three concepts strike on regional strategies that eliminate trade-offs and push ahead sectors and businesses that limit ecological depletion and social disparity. Emphasis is on understanding the earth as a close system where economic and social processes are embedded in a wider environment. The concepts are therefore promoting a shift in thinking towards economic, social and environmental relationships. For example, strategies in Nature Parks can stimulate economic activities, which in a general sense can promote local jobs and improve wellbeing. This is a sense of social sustainability promoted in the concepts of Nature Parks, green economy and sustainable regional development.

This review might be limited because academic literatures/researche relating the concept of green economy to that of Nature Park are scarce. However, this is an opportunity for this study to increase understanding using a European case on how Nature Parks encourage green economic strategies in a bid to improve regional sustainability. Taking into consideration the different views expressed in the literature above, the next section presents key research questions that will guide the entire investigation.

3.10. Research Questions

After discussing the state-of-the-art literature on Nature Park, green economy and sustainable regional development, it is important to underscore their meanings to the entire research idea. This is important in deciding the strategies for collecting and analysing data for the study. As

a result, with reference to the study objectives and the just highlighted literature, the main question for this research is: *to what extent are strategies contributing to the appreciation of Nature Parks by local, regional and national stakeholders, as instruments for greening local economies, for the purpose of attaining sustainable regional development in Luxembourg?* This is a strategy led question that incorporates viewpoints from local citizens, policy makers, resource managers, environmental organisations, local businesses as well as researchers, to highlight key insights on parks in Luxembourg. For the fact a Nature Park in Luxembourg involves a consortium of stakeholders, appreciating strategies planned for these areas by these groups of actors is relevant for organising future development projects for park areas. The notion of strategies as used in the research question has been narrowed to locally initiated approaches for promoting sustainable integrated development in parks in Luxembourg.

Moreover, as seen from the literatures, ideas related to Nature Parks, green economy and sustainable regional development are more about integrated development. That is, projects operating within the framework of these concepts are expected to promote ecological, economic and social development as well as other governance approaches. As such, the study relies on this assumption to formulate four main domains of sub questions that will help provide responses to the main research question. These questions are linked to environmental, economic and social, including the governance approaches of parks in Luxembourg.

Environmental Domain

- What are the strategies for protecting and improving ecological systems in Nature Parks in Luxembourg?

Economic Domain

- How are Nature Parks through innovation and diversification, influencing local economic development through local production of food and non-food items?

- How can the processes for local production be described?

Social Domain

- How can the social dimension of parks' policies be defined?
- What is the impact of Nature Park development on local employment?

Governance Domain

- What institutional relationship exists in Nature Parks in Luxembourg?
- How would one describe the participatory process for Nature Parks' development?

Other question

- What are the problems limiting efforts to encourage sustainable strategies in Nature Parks in Luxembourg and how could these be improved?

Through these questions, the research claims that the success of Nature Parks in Luxembourg will depend on certain sustainable strategies that will make these areas different from others. The essence of generating key questions in this section is also linked to the choice of the methodology used in the research. Consequently, key questions initiated other analytical instruments (interview guide) which helped in detailing empirical findings. These questions also served as primary tools for generating a coding scheme which has been detailed in the methodology chapter below.

CHAPTER 4: RESEARCH METHODOLOGY

The aim of this chapter is to provide a comprehensive description about the methods used in searching for responses to the research questions. The chapter begins with an account on the research design and methods. Closely followed, are explanations on the methods of data collection and analysis, as well as the overall strength and weaknesses of the research methodology.

4.1. Research Design

Away from the positivist view claiming a single truth on socially observed processes, this research rests on the view that individuals have subjective interpretation about their immediate environment, bringing forth broad and sometimes contrasting interpretations about a particular subject in question (interpretivism and constructivism). As such, in a search to interpret certain complex views in protected area management, the research has been broadly defined and situated within the context of Nature Parks in Luxembourg. This is meant to explain the role of the former as instruments of greening rural economies in Luxembourg. Interpretative research strategy as used in this study makes concrete use of multiple interrelated methods to provide relevant findings to questions of integrating ecological, economic and social objectives, including notions of resource governance, in local development projects.

From the above, the investigation adopts a qualitative research methodology, to find data that would explain the research questions. The qualitative research design has been used in many investigations in geography; bringing out superior responses to explaining the social environment and experiences within a variety of conceptual framework (Winchester, 2010). It has several key attributes (Brown, 2010). Flexibility in qualitative design provides inability to

specify details in advance, giving the researcher an opportunity to or not to agree, and to or to not be in a position to present alternatives (Hedrick et al. 1993). In this research, information obtained using qualitative methods will seek to explain how Nature Parks promote sustainable integrated development as well as the major challenges involved in this process.

4.2. Qualitative Methodology

Generally, the researcher's choice to use a qualitative methodology is based on understanding how and why things occur in Nature Parks, including certain outcomes. Creswell (2013) describes a qualitative approach as one in which knowledge claims are often made based primarily on the multiple meanings of individual experiences with intent to develop themes from open-ended emerging data using strategies of inquiry such as narratives, grounded theory studies, or case studies. In a broader sense, a qualitative study in geography is concerned with elucidating human environment and human experiences within a variety of conceptual frameworks (Winchester, 2010). In this research, the concept of green economy has been used to analyse human-environmental processes in Nature Parks in Luxembourg.

Moreover, qualitative research in geography is a sensitive technique to clarify complex problems, and particularly appropriate for studies related to the economic, social and environmental change that challenges traditional analytical and theoretical principles (Schoenberger, 1991). Considering this view, a qualitative methodology is suitable for answering questions related to this study. This is because the research seeks to explain via innovative and diversified activities, regional approaches that integrate economic, social and environmental, and even governance features, as a means among others, to handle the challenges of traditional development strategies that have for a long time shaped Nature Parks in Luxembourg.

The qualitative design represented in this study is a means for describing events and processes about the strategies of Nature Parks; assembled information from diversified data sources into themes and categories; draws conclusion about personal and theoretical meanings and states lessons learned (Wolcott, 1994). It also provides a degree of flexibility in connecting the different strategies and techniques of data collection and analysis as well as seeking appropriate channels for the researcher to decode socially constructed views and make suggestions about a specific activity or process in Nature Parks. In this regard, qualitative techniques were appropriate for generating meaning about the strategies used by stakeholders to regenerate the economy of Nature Parks. It was also a means to test the notion of green economy using rural cases. The qualitative methods that guided data collection and analysis are discussed in the next subsections.

4.3. Methods and Procedures of Data Collection and Analysis

4.3.1. Data Collection

The qualitative approach used in this research for data collection fits into the technique of triangulation. Data triangulation provided a means to retrieve data from a number of different sources to form one body of data. Consequently, the study applied three main methods of data collection. That is exploratory fieldwork, document analysis and expert interviews.

4.3.2. Exploratory Fieldwork

Field studies were conducted before and during the research exercise. As such, for this study, exploratory fieldwork practically helped the researcher in observing the different strategies operating in Nature Parks in Luxembourg. This was very important in relating practices of Nature Park development with the concept of green economy and sustainable development in general. As a tool for in situ research, non-participant observation provided a much deeper

understanding of the empirical context of the research (Yeung, 2003). Being in the field did not only provide reliable data through direct observations and experiential recording, but was also important for understanding the modes of operation of Nature Parks and to map out relevant institutions and stakeholders involved in an entire regional strategy. Through this method, it was possible to develop ideas about relevant experts to be contacted for interviews. The observation process also helped in improving knowledge about ongoing projects, relevant reports, policy documents and literature related to the development activities of case study areas. This method was very instrumental in seeking responses to questions related to the governance of park areas, including understanding the different production approaches practised by stakeholders of small and medium size cooperatives in Park areas.

Fieldtrips were organised by the researcher and preferred destinations were chosen prior to the research ideas and guided by some questions; what destination and reasons for chosen the area? At what particular time should I go out for field studies? How would a particular field-trip be organised? What are the results expected from the field? These questions were important in exploring certain activities, mainly agricultural, in park areas.

Identification of places was led by the research questions and objectives, together with the theoretical questions on Nature Parks as tools for local development. For the fact that it was imperative to understand the different pattern and processes of green activities found in park areas, the empirical fieldwork was focused on local production units as a means to appreciate the systems of regional production. Interest was also focused on local farms and firms, to see and talk to stakeholders, and to have their views on Nature Parks as regional tools for development. A trip to a regional supermarket created for marketing park products was also important in understanding the aspect of regional marketing in Nature Parks. More generally,

different areas were visited and those with whom the researcher had contact with were mainly activity oriented.

Systematically, fieldtrips were organised by the researcher and once on the field, efforts were immediately placed on collecting notes about important information and personal observations related to the research ideas. As mentioned above, at the very beginning, field studies were an essential input for understanding prospective sources for documents analysis.

4.3.3 Document Analysis

Secondary information from document analysis was necessary to situate the study within a broader knowledge framework and among contemporary debates about Nature Parks and the green economy. This was an important source of information for formulating the research questions and objectives, alongside questions for expert interviews. It also helped in testing the reliability of the research findings. In this regard, meanings and relationships were established, paving the way to compare theory and practice. In this study, document analysis was done alongside other methods, mainly field observation. As a result, views from documents sourced were very advantageous in providing information about the context of what was to be observed for the research, as well as ideas on how to frame the research questions for expert interviews.

Contemporary literature drawn from data sources were instrumental in linking the research results with present day deliberations about the role of Nature Parks in influencing local development. In this case, two distinct types of reviews were necessary. That is a general review and more concrete content review. The scope of general review was limited within the domain of environmental economic geography. That is, literature on spatial planning including books, journal articles and web sources appraising differing geographic and

economic perspectives on the interface between nature and economy in protected areas; policies and instruments designed to improve social, economic and environmental performance in natural resource areas; relevant concepts in economics, politics, and geography pertaining to the sustainability of environmental resources and quality of life.

Content review about Nature Parks in Luxembourg were taken from various sources; administrative policy and project files from public and Nature Park authorities, flyers, maps, seminars and conference papers, reports and other useful internet sites related to the two official Nature Parks. Generally, all documents were reviewed using an interpretive approach and each of these sources was reviewed uniquely to extract relevant information. Precise themes and questions eased the reviewing process, retaining focus on the main research ideas. Themes included among others, keywords from the research background and topic; green economy, Nature Parks, sustainable regional development, natural resource governance, sustainable local production, added value and regional marketing.

Moreover, certain questions were applied to guide the process of document analysis and these were frequently applied to each data source. That is, questions like; what is the document saying about Nature Parks and regional development? On which particular topic area is the document focused on? Is the document related to the European context or not? In all, document analysis was a valuable source of secondary data input for the research. This is because it provided background and content for the research, additional questions to be asked, supplementary data, means of tracing changes and development about the research ideas and verification of findings from other data sources (Bowen 2009). Generally, documents for the research provided important contextual information for analysing empirical findings of Nature Parks in Luxembourg and on how to link these results to the concept of green economy and sustainable development.

4.3.3. *Expert Interviews*

Interviews were used for collecting primary data on Nature Parks' policies towards local development. Creswell (2008) defined a qualitative interview as a process of data collection where a researcher asks and records responses from a participant. Qualitative interviews for this study provided a means to for an in-depth discussion with persons who have had relevant experiences (Charmz, 2007), about Nature Parks in Luxembourg. As such, it was a platform for the interview partners to freely express their views on the extent to which parks are instruments for sustainable development in Luxembourg. Information from semi open questionnaires was co-constructed by the participants and the researcher. This made it possible for the researcher not to dominate or control the entire interview process, but rather endorsed a free flow style for the exchange of information and ideas (Schostak 2006; Weiss, 1995). This was technically important for bringing out information from interview partners.

Selecting interview participants was guided by the reasoning that the research depends greatly on participants' views and experiences. This was mainly directed by the research question on how different actors at local, regional, national levels appreciate parks as tools for sustainable development. From this, three main guidelines influenced the selection criteria. Firstly, key local participants (local cooperate actors mainly affected by the policies of Nature Parks) should be members living in the two Nature Parks and should be experts either with practical and, or theoretical in-depth knowledge about the patterns and processes of Nature Parks in Luxembourg. Secondly, experts should also come from the policy arena because they are regularly involved in directing the administrative and development activities of Nature Parks. Furthermore, the views of ordinary citizens living in park areas were important in relating Nature Parks with the local population. Using this approach, a total of nineteen interviews were conducted from November 2012 to May 2013. (See annexes on full list of interview partners).

The interview process was divided into two sections, with a fairly balanced amount of participants in each of the sections. Main reason for separating the interview partners and procedures was to obtain as diverse as possible, feedbacks that would help compare the views of those who are mainly affected by the activities of Nature Parks with those who actually manage park initiatives. The first phase constituted a pilot study with eight key participants mainly affected by the policies of Nature Parks. They included; owners of small businesses, agriculturalists, local producers and suppliers, and private individuals. This phase was important in framing subsequent interview questions for the second section with stakeholders from, administrative and NGO sectors. Participants for the second phase of interviews were taken from government ministries (experts in the field of regional planning, environment, rural development and agriculture, including European projects on local development), local and Nature Park administration, researchers, syndicates as well as NGOs.

Semi-structured interviews were used to gather information on practical issues related to the socio-economic, ecological and governance procedures of Nature Parks. Open-ended questions (see questionnaire in annex) used in such an interview offered easy means to compare the reactions of different participants; coding and examination of responses. It was also a flexible method for respondents to reply to sensitive subjects. Information from the interviews was recorded in an audio sound recording device, even though this did not restrict the process of taken down notes about pertinent issues observed or heard during the interviewing process, and which later on contributed as a form of data for the research. In all, interviews were important in gathering first-hand information on parks' strategy. Data generated by the interviews were organised with the help of computer software programmes before proper analysis.

4.3.4. *Data Organisation and Analysis*

Data organisation, interpretation and analysis were guided by the method of qualitative content analysis. Content analysis in this study went beyond merely counting words or extracting objective content from texts. It included the examination of meanings, themes and patterns that may not be obvious or hidden in a particular manuscript. It allowed the researcher to understand social reality in a subjective, but scientific manner (Zhang and Wildemuth, 2009). In this study, the qualitative analysis started almost at the beginning of the research though timidly, alongside other processes of data collection. That is, during the processes of field observation and interview, efforts were made to start linking take down notes with relevant concepts in order to direct subsequent data collection towards sources that are more useful to the research question (Miles and Huberman, 1994, in Zhang and Wildemuth, 2009). This method is related to the “enlightened” approach (Suter, 2012), where data collection and analysis are done simultaneously to provide a system of data organisation, reduction, consolidation, comparison and reconfiguration.

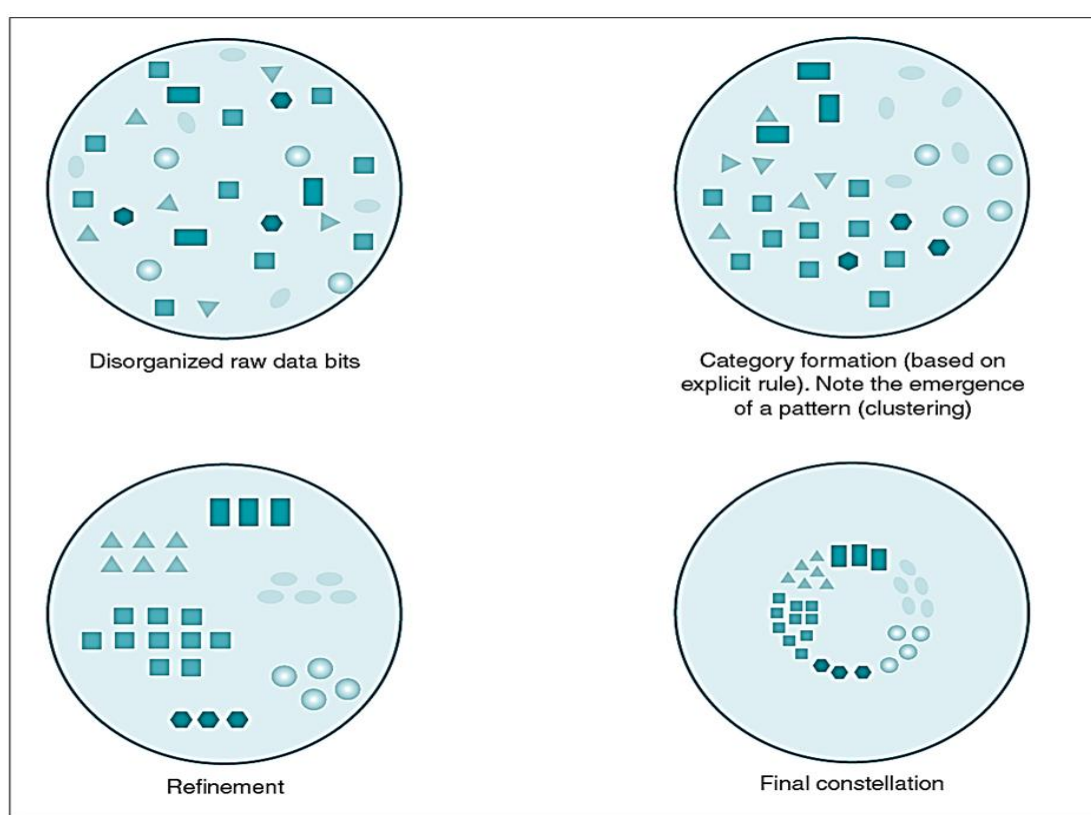
As a consequence, the researcher adopted the qualitative metaphor (Suter, 2012), to record, code and categorise data. This is similar to what Dye, et al. (2000, in Suter, 2012) referred to as the “kaleidoscope” of qualitative data analysis (See Fig. 9 below). It explains how unclassified data can be organized using simple techniques of qualitative analysis.

Mentioned earlier, the analysis process was guided by the qualitative content approach in which recorded information, referred in the diagram below as disorganised raw data, were transcribed using an audio transcription software programme; F4. Transcripts were later used as primary source of information for content analysis.

Certain questions according to Schilling (2006) guide the transcription process. That is, should all the questions or only the main questions from the interview guide be transcribed;

should the verbalizations be transcribed literally or only in summary; and should observations during the interview (e.g. sounds, pauses, and other audible behaviours) be transcribed or not? In addition, the MAXQDA software for qualitative data analysis was used to logically code, organise the transcribed data into different themes and categories related to the philosophy of the research. Some data were organised using tables and diagrams to better explain the research results.

Figure 10: Kaleidoscope of Qualitative Data Analysis



Source: (Suter, 2012): from Dye, et al. (2000).

4.3.5. The Coding Scheme

A convincing practice of data analysis often begins with a coding process (Creswell, 2013). Analytical coding is the process of organizing information into “chunks” before bringing meaning to those “chunks” (Rossman and Rallis 1998 in Creswell, 2013). That is, a method of

taking text data, sentences (or paragraphs) or images into categories, and labelling those categories with a term. As mentioned previously, codes were developed in relation to the key research questions, which were also very much in line with contemporary literature about Nature Parks, green economy and sustainable regional development. The coding process in this study covered many stages over time and it helped in obtaining disorganised raw data as in the diagram above.

The open coding technique was used to search for information from each line and paragraph of the transcripts. Using the MAXQDA software, different colours were used to tag sensitive phrases, sentences and paragraphs in the transcripts, based on keywords from the research design. For example, green represented information on environmental issues, while red, blue and yellow were for economic, social and governance respectively. These topics represented sub-codes and were manually retrieved from the MAXQDA in a later stage and organised in an exercise book. Transferring the information into an exercise book was an easier means for the researcher to handle the data and to be more familiar with the information at hand. At this stage, similar topics were classified and merged to develop actual codes (local integration) while divergent topics became emerging codes.

Codes were defined based on theoretical abstractions even though the researcher was aware that themes related to the research topic would emerge from empirical findings. The theory-based definition was due to the research objective to compare theory and practice of Nature Parks' policies towards greening local economies. The coding process was reviewed constantly to form categories that originated from themes in the proposed research topic.

Categorisation assisted the process of data arrangement and clustering of similar ideas. Progressively, the categorisation procedure continued with the emerging codes until a point of data saturation where any addition information was simply confirming existing views. As

such, six main categories were obtained and constituted the foundation for preliminary analysis (table, 3). At this stage, it was necessary to start linking the different categories to the anticipated concepts of the research, in order to bring out the senses hidden in the collected data and to cross-match analysed documents with practical realities. The coding and categorisation process made it easier for the researcher to analysed acquired data in retrospect with the research questions on ecological, economic, social and governance approaches of park areas.

Table 3: Main Coding Categories

Themes	Categories
Instruments for sustainable integrated development	- Environmental Protection
	- Economic development
	- Social well-being
	- Governance processes
Challenges in parks areas	- Problems in realising a local green economy
Policy recommendation	- Indicators to measure performance

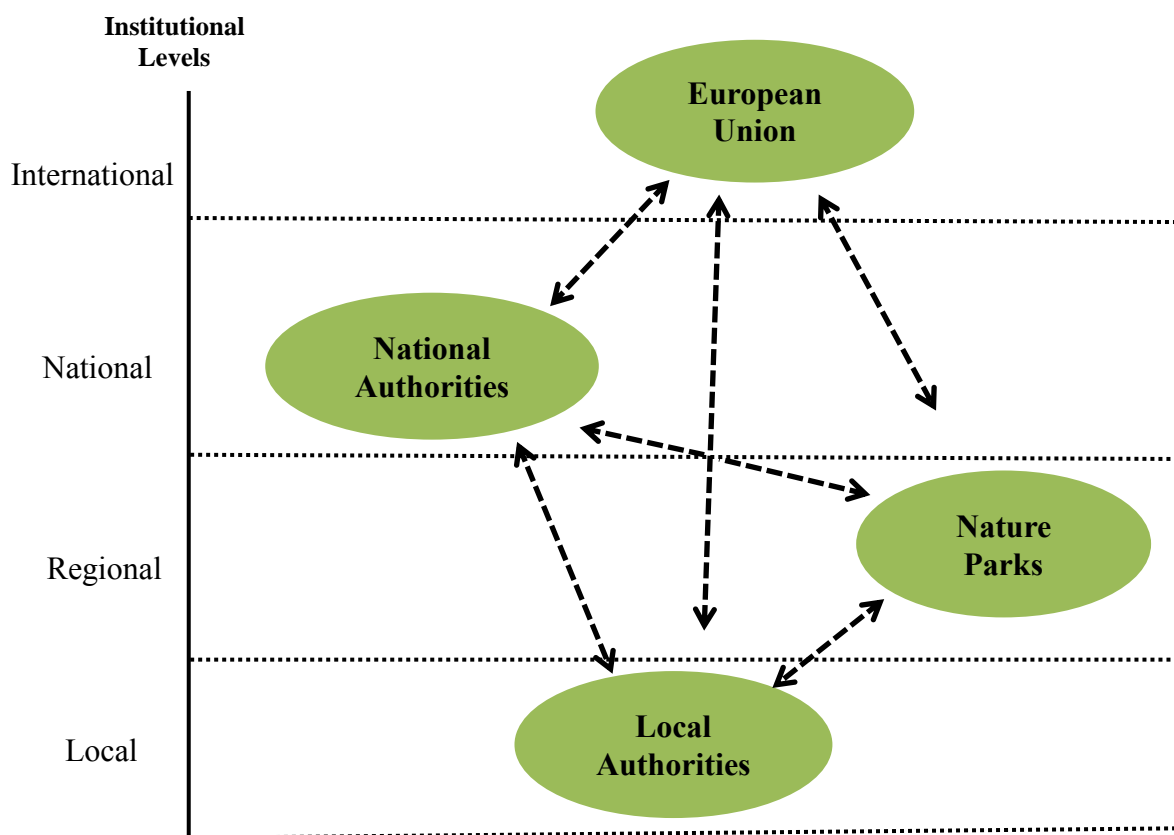
Source: Own Work

4.3.6. Institutional mapping

The responsibility to manage development activities in Nature Parks in Luxembourg is a combined and voluntary effort of individuals, municipalities, the state and other international agencies. To make this point more explicit in subsequent chapters, an institutional map (Figure: 10) was used to analyse the organizational structure and relationship between actors of parks in Luxembourg. Institutional mapping is fundamentally a process of analysis to give

insight into institutional and governance structures for management (Green, 2007). For the fact that it is a basic tool for understanding the potential roles of stakeholders and institutions involved in any development initiative (Aligica, 2006), institutional mapping was significant for analysing the levels of interaction between stakeholders in Nature Parks. This is vital in providing responses to the research questions that seek to understand how natural resource governance is an integral component of the green approach. It also reflects the selection criteria for the different interview partners for the research. That is, participants for the interview process were drawn from national, regional and local stakeholders. Some of the participants also represented Luxembourg in international development projects such as the INTERREG. In this case, they served as a national and international source of information concerning rural development in Luxembourg. The diagram below (figure: 10) marks the beginning of the mapping process, displaying the main institutional relationships that could be found in Nature Park areas in Luxembourg. A detailed map has been projected in the chapter explaining the research findings. This is as an attempt to describe the degree of relationship between actors governing strategies in parks in Luxembourg.

Figure 11: Institutional Network for Nature Parks in Luxembourg



Source: Own Work

4.3.8. Validating the Research Findings

The technique of data triangulation was used to test the reliability of findings. As highlighted earlier, various data sources in the framework of qualitative research were used in this study to search and correlate information. The interview technique provided a source of related views from various stakeholders' groups with different perspectives on Nature Parks' policies. As such, the similarities found in their judgements provided a parallel conclusion on the extent to which Nature Parks are influencing the greening of local economies; thus establishing strength to the research findings. Validity was also tested by correlating the research results with secondary information gathered from document analysis.

4.4. Assessing the Research Methodology

The methods applied in this research were meant to eliminate all research biases and to seek appropriate responses to the research questions. The researcher did all that was necessary to involve all actors linked to the research. However, there were some personal lapses, which in one way or the other, contributed in sinking useful information. For the fact that the researcher used the French and English languages to conduct interviews in case study areas where actors would prefer Luxembourgish or German was a real handicap. Also, important documents written in languages other than those of the researcher were difficult to be interpreted while the process of translation led to petty data loss. Nonetheless, the methods used in the research were necessary to provide anticipated data for analysis.

Also, it should be noted that the methodology for this study did not provide a framework to analyse the aspect of tourism, which is an important economic activity in protected areas. The promotion of sustainable tourism (mainly through ecotourism) in relation to regional characteristics is a major economic activity in both the Upper Sûre and Our Nature Parks. This is a necessary activity that helps to increase the attractiveness and competitiveness of both parks, through the marketing of improved products and services. Although being an activity that minimises negative impacts on nearby natural and socio-cultural environment, this sector has not been included in the empirical analysis for this study. The reason is because themes related to sustainable tourism and regional development have been extensively researched upon. As a result, the researcher did not intend to follow this normal trend, for fear of duplication. This was, however, intended to provide a certain degree of originality in relation to the case study areas. In this respect, the empirical analysis was generally focused on the sectors of the regional production. This leads into the fifth chapter of the research that describes certain strategies applied in parks in Luxembourg.

CHAPTER 5: NATURE PARKS' STRATEGIES FOR GREENING LOCAL ECONOMIES

This chapter addresses the research questions by describing certain practical approaches initiated in Nature Parks in Luxembourg, for greening rural areas. Results are based on the various sources of data acquisition mentioned earlier (see methodology chapter) and according to the categorisation themes (mainly ecological, economic, social and governance aspects of park development). This has made it possible to describe how strategies applied in Nature Parks are attempting to combine functions of nature conservation and regional development and how these are related to the approach of green economy. The research findings confirm that Nature Parks' policies to face-lift the economy of rural areas are having profound and feasible effects beyond environmental protection, including aspects of economic development, participatory local governance as well as social well-being; even though very narrowly.

The opening section of this chapter describes approaches for improving the performance of ecosystem services through environmental protection. This seeks to provide responses to the first sub-question of the research. Following this, the second section relates to the second alternative research question, requesting an explanation on the extent to which Nature Parks influence innovation and diversification in the regional economy. For the reason that empirical study was focused mainly on the dominant regional economic activity (food and non-food production) in parks, the second section stresses on strategies of regional production which is a main economic backbone and upon which policies adopted in Nature Parks have had significant impact. Parallel to section one and two, the last sections describe the governance approaches implemented in Nature Parks for enabling a sustainable regional economy. The social aspect of Nature Parks in Luxembourg has been analysed in the next

chapter. This has been done intentionally because the researcher thought it should be discussed under the section explaining the difficulties related to parks' strategies.

5.1. Environmental Strategies for improving Ecosystem services

Many of the strategies to prevent environmental degradation in Luxembourg's Nature Parks are linked to objectives of economic prosperity, institutional cooperation (regional governance) and to a certain extent social development. This is the "ecosystem approach" where, strategies for integrated biodiversity management place human needs at the centre of development priorities (IUCN, 2012). The idea of environmental conservation tries to strikeout trade-offs between economic development and quality of life for the rural population, seeking to guarantee a reliable future through a common platform for the interest of all stakeholders implicated in the development of park areas. In this way, the strategy of conservation is aimed at reconciling different actors' groups; farmers, tourists, foresters and local producers, not excluding ordinary individuals, on a common agenda.

Nature conservation is a major priority in both the Our and Upper Sûre Nature Parks, as described in article two of the law of 10th August 1993, guiding the creation of parks in Luxembourg (See Appendix). Consequently, conservation and restoration of nature and the natural environment; wildlife and native flora; air, water and soil quality are important requisites for achieving environmental objectives and for implementing sustainable policies in these parks.

The concept of Nature Park in Luxembourg was purely environmental from inception, focusing wholly on issues related to nature and the environment. However, due to increasing expectations and demands for alternative policies by local actors, this notion was later

broadened to include other pillars of sustainable development. One of the most important strategies in Nature Park is awareness building through environmental education.

5.1.1. Environmental education

Education for a green economy is a necessary input for shifting local thoughts towards natural resource valuation and the promotion of green skills required for sustainability transformation in park areas. Education for ecosystem valuation is an important target of the EU 2020 biodiversity strategy and is important for (re)improving traditional skills required for handling natural resources. This approach of resource conservation is contributing significantly to greening the economy of Park areas from bottom up. This is because applied approaches have the ability to equip people with values, competencies, knowledge and skills necessary to put into practice the green economy concept (United Nations Economic Commission for Europe - UNECE, 2011).

The motive for environmental education in Nature Parks in Luxembourg is to improve accounting services for the natural environment and also some important skills to design and implement products and processes that level natural properties. Environmental education is standard in the Upper Sûre Nature Park where an artificial lake stands out as the main reason behind the creation of the park. Through this, important measures are being taken to protect the so-called “blue gold” in order to have quality water supply for a quarter of Luxembourg’s population. Consequently, since 2003, outreach educational projects to increase awareness about the environmental assets of the lake region have been on an increase.

Main themes for environmental education in the Upper Sûre Park revolve around water management, with the “Eau-tomobile” project being one of the most important initiatives to educate children on the importance of keeping clean water from the lake. Games, excursions

and experimental exercises are used to provide children with off class experiences on how to make surface and groundwater cleaner. Most learning activities are framed within subjects of environmental economic relationships. The aim is to increase knowledge in children and young adults on the risk of unsustainable economic practices on essential water sources. It is a desire by the Upper Sûre Park authorities to provide important guideline principles to a younger population they believe would be instrumental in directing the economic future of the park. Consequently, there is a degree of guarantee about the sustainability of future environmental economic activities.

5.1.2. Biodiversity contracts

Biodiversity contract is another conservation practice promoted by the Upper Sûre and Our Nature Parks. This is geared towards inspiring thorough stewardship of lands. Park authorities make use of this policy to reduce the use of harmful supplements in agriculture and in the cycles of local production. Contracts in the form of incentives are signed with local landowners for the protection of certain plants and animal species, including soil, air and water. A number of farmers are given financial compensation for their efforts in managing the environment and for restraining from intensive production practices especially along water courses. Others are provided with technical and professional support from the government through the park administration. By 2008, about fifty farmers in the Upper Sûre Nature Park had signed the biodiversity pact. Another important approach that is related to these contracts is that of cross-border corporations (informal) between Nature Parks in Luxembourg and parks in neighbouring countries like Belgium and Germany. This is destined to regulate the introduction of hazardous chemicals into important cross-border water sources.

In the Our Nature Park, biodiversity contracts to protect the catchment area of the Our River have been signed between park authorities, local population and neighbouring cross-border

municipalities. The river contract or “River Partnership” aims to bring together all stakeholders with a direct or indirect effect on water quality of the Our River. Together, stakeholders are trying to identify problems and find common solutions on water management. As such, the residents of the Our watershed under the European framework directive on water, have become actively engaged in sustainable and participatory management of their river basin. Dialogue and consensus are the working tools for ensuring effective biodiversity contracts. To ensure that the actions do not stop at park borders, all countries in the catchment area of the Our River form part of this scheme.

5.1.3. Environmental Advice on Agricultural Cultivation Practices

Another important strategy for protecting the environment is the contribution made by agricultural advisers from Nature Park administration. These are often well-trained specialists with full term employment, placed in the two Nature Parks to give technical suggestions to farmers. They counsel local farmers on the types of farming practices compatible with the local ecosystem and also, on the importance of organic farming in a Nature Parks.

“I remember my first idea about diverting to organic farming was given to me by a park administrator in the form of a piece of advice” (a local farmer)

Attention on environmental protection in the context of crop cultivation is most often being focused on leguminous crops. This is due to its capacity to improve soil nitrate, soil nutrient and to bind soil particles against erosion. Another innovative method of soil protection being promoted by agricultural advisers is the technique of “semi-direct”, intended to maintain soil stability and increase yields. This is a method widely used in most Latin American countries practising intensive cash crop cultivation. Although intensive farming is not a promoted

activity in Luxembourg's park areas, farmers are nonetheless being trained on the method of semi-direct. That is, a system on how to turn a (plough) topsoil in a depth of 5mm in order to retain the humus layer. Before the introduction of this technique in Nature Parks, farmers were usually engaged in a traditional ploughing system, rotating entire topsoil at a depth of about 30mm. This gave room for intense leaching and erosion, estimated at thousands of tons of top soil per year, including related consequences such as lower crop yields and lesser profits.

Furthermore, farmers are also encouraged on the needs for cultivating new a variety of seeds that require little or no chemical additives and which are more compatible with the immediate environments. They are also being guided on the cultivation of certain desired, but complicated crops that might have devastating effects on soil productivity. Crops like maize, which is very good for feeding cattle due to their high-quality silage and less growing cost have become very attractive to farmers in both the Our and Upper Sûre Nature Parks.

Nevertheless, maize is a complex crop due to its capacity through the root system to break down compacted soil particles; increasing drainage and erosion of the humus layer as well leaching important nutrients. For the fact that the maize plant requires much nitrogen to accompany its growth, this nutrient is at times in inadequate quantities, most often observed during periods of crop rotation when patches of soils could be found with deficiency in nitrogen. Where scarcity of nitrate exists, farmers are tempted to complement the nutrient using nitrogen fertilizer. Consequently, excessive nitrogen fertilizer ends up increasing nitrate levels in the underground water table and in the Upper Sûre Lake for example.

“The nitrate level of our drinking water sources has been increasing steadily within the past years and this might be coming from nearby farms” (suggested a municipal authority).

It is due to these effects that “Nitrogen mineral analyses (Nmin) in maize” is being carried out regularly in the Upper Sûre Nature Park, to maintain the cultivation of maize crop against the effects of unstable nitrogen quantities in the soil.

5.1.4. Agricultural modernisation programmes

The agricultural sector including crops, livestock, fisheries and food processing is playing a vital role in the transition to a greener economy (Food and Agricultural Organisation, 2011). Strategies for agricultural modernisation in park areas seek to improve farming methods that guarantee water and soil quality, including species protection. This is the approach of “Greening the Economy with Agriculture” - GEA (Food and Agricultural Organisation, 2011). It is achieved by applying an ecosystem approach to agriculture management in a manner that addresses the multiplicity of local needs and desires, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by nearby terrestrial and aquatic environments.

Through the agro-environmental programme, farmers in the two official Nature Parks are advised on the importance of organic production and on the harmful effects of chemical fertilizers and pesticides on the surrounding ecosystems. It should, however, be noted that the proposals to reduce chemical fertilizer is a nationwide initiative, aiming at reducing groundwater pollution across the territory of the Grand Duchy of Luxembourg. However, this initiative has been considered extremely important to an extent that it has become a priority in park areas, given that these parks harbour important drinking water sources for Luxembourg.

In the Our Nature Park, innovation in the primary sector takes the form of agricultural diversification to influence the commercialisation of new products with environmental values. “Test Farms” (Champs d’essai) are being developed for this purpose. It has recently been

realised that outdoor vegetables have gained prominence through this action. As a result, new markets for regional products are beginning to emerge. This is a force to drive forward the region's economy. Economic development is, therefore, an important aspect of parks' strategies. This is systematically explained in the section below.

5.2. Nature Parks and the Local Economy

It is not very easy to describe how Nature Parks have been influencing the economy of local areas where they are found. This is because there are no organised data sources to indicate trends and monitor changes about local economic activities in park areas. However, generally, one thing is obvious about Nature Parks and the local economy. That is, activities related to local production have seized the advantages of economic innovation and diversification to create new products and opening new ecopreneurial-opportunities in park areas.

As mentioned in the preceding sections, empirical investigation on local economic activities focused more on the production economy. This is because traditional strategies of local production in park areas are being modified to promote a system of production that respects natural ecological processes. This explains the integrated relationship between environmental and local economic development processes in Nature Parks in Luxembourg. In this wise, attention has been on different food and non-food items produced in park areas. Food and non-food articles are generally referred to as natural resource products (physical resources) that have been obtained from nature and made available for use (Field, 2008). These are important by-products from provisioning ecosystem services. These include among others, items such as food stuff, cosmetics and other household detergents. Innovation in local production has led to the development of small and medium size cooperatives; creating positive economic externalities. It will be better to explain this with concrete examples of form both parks.

5.2.1. Local production in the Upper Sûre Nature Park

At the time when the Upper Sûre Nature Park was created, the agricultural sector was the main beneficiary of most projects. This is not surprising for the reason that the park is a collection of rural communities where agriculture is a leading economic activity. Therefore, any modification could have nevertheless been traced from the agricultural sector. Even though most local farmers were sceptical about the Nature Park project in the first instance, thinking it would be a hindrance to traditional means of crop cultivation, the Upper Sûre Nature Park has helped to diversify local production techniques; bringing forth new strategies that blend traditional and modern practices and these have been generating a regional identity for this region.

The first ever tea production unit in Luxembourg is an initiative from local farmers in the Upper Sûre Nature Park. Although tea production started slightly before the introduction of Upper Sûre Park, this activity has been witnessing intense modifications due to contributions from the Nature Park. Promoting tea production is a process to stimulate eco-friendly activities in economically sensitive domains. It is motivating to see how an economic activity like this one has taken up key measures to protect water sources and produce quality products.

Also, recently, there has been a tendency to transform more than 80% of cereals produced in the Upper Sûre Nature Park into finished products, before exporting to external regions (information obtained during field studies). A good example of innovation and diversification in this domain is from the production of beef products obtained from cattle that are born, grown, fed, slaughtered and packaged in the park area. This is a practice intended to shrink production cycles and to limit material flows within bearable distances (promoting short market chains). This process has well assisted in guaranteeing a regional circulation of

finance since a fair amount of income generated through local transaction stays within the park's economy.

Moreover, some local producers have gone as far as assimilating EU standards in local production processes. A number of local products from the Upper Sûre Park could be found with EU certified labels for quality and eco-friendly products.

Figure 12: The EU label for biological agricultural products



Source: European Commission

In most cases, depending on objectives, local producers would use different brand names for their goods. Products are usually labelled using the acronym of the park where the producer is found. Product names are also a reflection of the manufacturing processes (Conventional, natural or eco-friendly).

In the Upper Sûre Nature Park, local producers mainly in the form of small cooperatives and ecopreneurs are trying to promote the image of the region by using “Vum Sei” (from the Lake) as a label for park products. Ecopreneurship is an existential form of business behaviour committed to sustainability (Isaak, 2010). In such a situation, an individual creates green-green businesses in order to transform the economic sector in which she or he operates. Moreover, these are sustainable entrepreneurs that help to address fears over negative environmental impact (Gibbs, 2008). It should be noted that sticker for quality products is meant only for producers who are approving the terms set by the Upper Sûre park authorities for the preservation of the nearby environment and for the manufacturing of quality products. The situation is to an extent the same in the Our Nature Park that has BEO as its main label. The difference is that unlike in the Upper Sûre park where a brand name was initiated by the

park administration and other local stakeholders (mainly small cooperative holders), in the Our Nature Park, this was initiated by a group of local producers.

As highlighted above, products from the Upper Sûre Nature Park are mainly items carrying the label of the Nature Park (Vum Sei).

5.2.2. Tea (*Tei vum Sei*)

Tea production was initiated by the “Kraidergenossenschaft Naturpark Uewersauer” (Upper Sûre Nature Park herb cooperative) in 1993 as part of a LEADER project. This is one of the most recognised products from this Nature Park. Tea products are mainly from medicinal plants and other herbs being grown and processed in the Nature Park. The plants are cultivated without the use of fertilisers and pesticides in order to comply with strict regulations regarding nature conservation and environmental protection (Upper Sûre Nature Park, 2014). It should be noted that these tea products are not natural (biological) even though being grown with eco-friendly principles.

Figure 13: Tei vum Sei



Source: <http://www.naturpark-sure.lu>

5.2.3. Blei (*Blei vum Séi*)

The Blei vum Sei cooperative targets the development, production and marketing of artisanal non-food products based on extracts from regional medicinal and aromatic plants. The range of products includes perfume, soap, creams, as well as massage oils. A fair amount of food stuff like candies is also produced here. Interestingly, it was realised that a portion of raw materials used in the production of Blei vum Séi products is not from within the Upper Sûre Nature Park area. Chemicals and sugar for the production of cosmetics and sweets are

imported from other countries. Moreover, items such as Spicy Chile Oil found in Blei vum Séi cooperative are not a product from within the Nature Park. These are mainly imported products carrying the label of Nature Parks. This style of local production raises questions about the effectiveness of the Upper Sûre Nature Park in promoting indigenous economic values with the help of regional products. All things being equal, with such actions being allowed, it seems the park is more in favour of economic benefits relative to environmental protection (the economic growth syndrome)

Figure 14: Blei vum Sei



Source: <http://www.naturpark-sure.lu>

5.2.4. Spelt (*Spelz vum Séi*)

Spelt is one of the oldest plants grown in the Upper Sûre Nature Park for commercial purposes. It is an environmentally friendly crop that requires minimum nutrients for its growth and can also resist extreme weather conditions. Its cultivation is restricted from the use of chemical fertilisers or fungicides. Spelt grains are mainly transformed into flour, spelt rice, breakfast cereals and pasta in various forms, semolina, crisps and chocolate rolls, including drinks. Husks from the spelt grains are excellent filling material used for cushions, breastfeeding pillows and mattress toppers, by a sister cooperative still within the Upper Sûre Nature Park. Flour still from the Spelz Vum Sei cooperative is used by a local bakery (Bäckerei vum Séi) for the production of bread and other related products. Also, it is possible to witness cooperation between producers from the two parks. Blei Vum Sie, for example, makes use of vegetable oil from the BEOLA cooperative in the Our Nature Parks to produce many of its cosmetic products. These are all noble illustrations about a regional production

chain where certain waste and finished products of one firm are converted into raw materials for another cooperative. This goes further to explain the existing economic solidarity between regional actors.

Figure 15: Spelt vum Sei



Source: <http://www.naturpark-sure.lu>

5.2.5. Meat (*Véi vum Séi*)

Meat products from the Vei vum séi cooperative include beef, pork and poultry. These items are from cattle and birds that are born, fattened and slaughtered in the Upper Sûre Nature Park. The animals have been grown extensively using environmentally sound conditions on limited parcels of land.

Figure 16: Véi vum Sei



Source: <http://www.naturpark-sure.lu>

5.3. Local production in the Our Nature Park

It is generally visible that innovation brought about by Nature Parks is being felt greatly by sectors related to local agricultural production. Before the creation of the Our Nature Park in 2005, agricultural production was based on quantity rather than quality. It was only subsequently that farmers were guided on how to add values to locally obtained raw materials, in order to have quality final products. Through the agricultural modernisation and diversification programmes, some local groups in the Our Nature Park have started enriching

the agricultural sector. Newly established agricultural enterprises have emerged, with the objective to improve agricultural production. Consequently, new crops which are compatible with the natural environment are constantly being introduced, while traditional ones are being restored. Presently, competition and exchange of ideas and materials could be found among local cooperatives in this area. About ten local farmers are engaged in eco-friendly farming methods with no pesticides and chemical fertilizers. However, organic farmers are rare.

5.31.Reintroducing traditional crops

The creation of the Our Nature Park has helped in reintroducing the cultivation of the hemp plant; a practice which had disappeared from the region some fifty years ago. Farmers are currently transforming hemp seeds into cooking oil. There has also been the creation of similar farmers' associations engaged in the artisanal production of sunflower and colza oil. The bulk wheat (Sarasin) is another crop that was introduced recently, with a high nutritive value. Presently, it has a high demand from the local market because of its importance in the production of local beer. All these plants are being grown with the help of eco-friendly methods which stress on little or no use of chemical additives.

Figure 17: Hemp oil from Our Nature Park



Source: <http://www.naturpark-our.lu>

5.3.2. *Transforming the mustard seed*

The case of the mustard plant is fairly different from other plants introduced within the Our Park. This plant has traditionally been cultivated for their importance in maintaining soil stability and enriching the humus layer. In effect, the seed of the mustard plant had no economic value to early farmers in the Our area. It was neither harvested nor being transformed to anything else. With the coming of the Our Nature Park, farmers have been educated on how to transform mustard seeds to further produce six different kinds of mustard products. Before this initiative, much of what was consumed as mustard in Luxembourg was from Canada. With increasing progress made recently in the domain of agricultural transformation, a greater proportion of mustard products found in local markets in Luxembourg is from the Our Nature Park. Moreover, this is the only area where mustard products are produced in Luxembourg. This goes a long way to explaining how this park has been attempting to reduce flows between continents, for products which can be manufactured locally. Likewise, innovations in crop cultivation can be seen as another action towards promoting diversification in regional economic activities.

Figure 18: Mustard from the Our Nature Park



Source: <http://www.naturpark-our.lu>

Still, in the Our Nature Park, BEO (Bauerninitiative fir d'Éisleck an den Naturpark Our) is a popular local cooperating body, grouping about two hundred and fifty farmers. The goal of this cooperative is to emphasise responsibility on protection and use of natural resources while at the same time initiating innovative projects on crop cultivation and transformation. Another argument for the farmers' initiative is to provide transparency, traceability and

quality in local food production; a means to have direct contacts with consumers. In effect, three main cooperatives (BEOLA, BEOGRAN and OURDALLER) exploit the BEO brand. These cooperatives are responsible for the production of eatable oil (Canola, linseed, hemp, sunflower and puppy oil) from locally grown plants. Also, fruits from plants such as colza, hemp and sunflower are transformed into cereal products, mustard, soaps as well as flour.

Figure 19: Sample of Colza oil from the Our Nature Park

Source: <http://www.naturpark-our.lu>



Honey is also a major product.

Figure 20: Honey from the Our Nature Park



Source: <http://www.naturpark-our.lu>

Local beer from the Ourdaller Brauerei is equally an important component of the production economy of the Our Nature Park.

Figure 21: Ourdaller Beer



Source: <http://www.naturpark-our.lu>

After describing the main food and nonfood products from both parks, it is also necessary to explain the sustainable aspects involved in the production of these products.

5.4. Sustainability Aspects in Local Production Processes

It would be unwise to limit narrative on the local economy only on food and non-food items without considering the in-between processes from cultivation to transformation and obtaining the final products. This is in order to improve understanding about the sustainability aspects involved in local production processes.

Popular conception from stakeholders engaged in economic activities in both Nature Parks stresses the need to conserve natural resources; be non-polluting; economically viable; safe for workers and socially rewarding for communities and consumers. This idea has been nursed into three types or processes of local production linked with the agricultural sector in Nature Parks in Luxembourg; quality, ecological or organic and conventional.

5.4.1. Quality Production

Proponents of quality production try as much as possible to eliminate the use of conventional procedures and to maintain certain sustainability standards in the production process. Even though it is not an organic mode of production, practitioners are modestly guided by a specification list that controls the use of harmful substances to the environment. The specification list is known as the “cahier de charge” in the Upper Sûre Park. It convincingly ensures environmental protection and production quality by restricting the application of pesticides and other harmful sprays in the production chain. However, this document is only limited to producers who wish to obtain the label of Nature Parks for their products; a relatively smaller proportion compared to the entire number of local producers in the park region. A laissez-faire situation seems to exist for those farmers and producers who are not willing to use the label of Nature Parks. Moreover, there are still some cooperatives which are given access to the park label, but do not practically make use of the specification list. This is because;

“There are excessive controls which do not make real sense to producers. Imagine a radiation or contamination analysis on what we produce... Anyone can do it, but not as they are very expensive and which might force us out of business. Also, it is important to note that, a cooperative which has been in existence for about ten or twelve years and developing innovative ideas for the region without any financial subvention from the park, will not wish to completely open its doors in the name of total transparency. In this sense, I think the specification list is pure imagination” (explained a local producer).

This explanation might be fairly understood. However, a question that comes to mind is; who has the authority to control production in the Nature Parks in Luxembourg?

“It is clear that parks are important instruments to boost local production, but this depends on the producers. This is because park authorities can only assist or inspire sustainable means of production and they are not by themselves local producers. Authorities can only suggest best practices related to organic production and it is left for the producers to decide the fate of their action. In this case, producers are the masters of their destiny” (explained a park authority).

If each producer is free to choose what method best suits ambitions even though there is a common tendency towards uplifting green principles, then there is something wrong with the general concept of local production looking at it from the stands of sustainable development.

5.4.2. Organic Production

On the other hand, the sector of organic production relies more on the self-regulatory processes of the natural ecosystem without any input from unnatural sources. Organic producers emphasise environmental and social sustainability as major ethical values in the local production chain. Organic production is guided by concrete follow-ups and monitoring processes to ensure better quality products and to reduce environmental problems such as pollution, originating from various production sources. Except for organic producers, most quality producers have designed their own list of specific harmful products, which is fairly different from the one proposed by the park authorities. This is the story profit maximisation and hidden economic trade-offs; a principal method of business-as-usual enterprises. Apart from the difficulties to truly describe the aspect of sustainable production in Nature Parks in Luxembourg, it is also challenging differentiating between organic and quality products especially when both are carrying labels originating from the same Nature Park. From this, it can be said that,

“Sustainable production has become a term that is often abused. Many corporations in park areas give themselves "sustainable or green expression" for marketing purposes. It is getting increasingly difficult for customers to differentiate between those who are actually producing sustainably and those taking advantage of the name "sustainable" for sale” (Complained an agricultural Specialist)

5.4.3. Conventional Production

Conventional production in park areas follows the business-as-usual model, with little or no consideration about the practical realities of environmental degradation. In this process, producers are mainly interested in maximising profit. Apparently to this group of local

producers, the doctrine of Nature Park is a hindrance to their normal practices, given that they could still remain above the break-even point even without the labels of Nature Parks. As such,

“Why should they care if they can sell at the same price as products with park labels” (questioned a park administrator).

In this regard, exclamations are plenty as to whether Nature Parks should be managed using a centralised policy to regulate local production.

The goal of Nature Parks is to be open and transparent especially when it comes to local production. For the fact that park authorities have no administrative power to control production procedures, sustainable production is a desire and not a regulation. Consequently, continuous negotiation with producers about the effects of certain chemicals on land and water sources is the only tool Nature Park authorities have. Few local producers are engaged in organic production. Even though there is increasing awareness on the importance of regional products, especially organic, things are still to change as per the number of producers involved in organic production.

It was realised that, one of the greatest difficulties for parks to absorb a superior portion of their products in the organic realm is that most local producers are naive about the opportunity that exists in producing organic products and because there is no common consensus on what should be contained in the list of specification proposed by park authorities. Moreover, for the fact that the success of local farmers in many European Union countries depends more on subsidies rather than on the quality of their products, there is a tendency in this case to favour quantity and not quality. This situation has rendered some

local producers in park areas to consciously not engaging in organic production, considering mainly the financial benefits. Faced with this situation;

“The question should be; is it better to use public money for quality products or is it for the local producers to decide?” (Questioned an organic producer)

The question of choice in the production landscape in Luxembourg’s parks could be described as one that lies on culture and to an extent, the financial characteristics of each producer. Despite the tremendous influence of agro-industrial modernisation, mainly driven by multinationals, government authorities, and farmers’ associations, some local farmers are still involved in traditional production techniques passed from father to son and which have now become a cultural norm. As such, there is not enough motivation to change lines of production especially when the cost of alteration is taken into consideration. This might be fairly tangible as a justification for not engaging in organic farming. However, since other farmers have tried changing and found it to be economically viable, *ceteris paribus*, others could do the same. It seems the problem lies on educating local producers, letting them understand the advantages of natural regional products, especially in a society where demands are high. Consequently;

“If there is any place within Luxembourg where organic farming is to be encouraged, it should be in Nature Parks. This is because, parks have the maximum potentials in doing so”, (alleged an agricultural specialist).

Also, If we consider the fact that Luxembourg has the third highest per capita consumption rate (127 Euro or 177 USD) for organic products in the European Union (Helga and Lukas, 2012) and mostly rely on imports, then we would conclude that the desire to engage in

organic production is at the moment very low (No official statistics as to what quantity of organic products is produced locally in relation to national data. Remarks are based on personal observation).

The limited aspiration described above may be due to the reason that there is not enough awareness about Nature Parks as priority areas to boost local production, especially through organic farming. This is certainly because stakeholders understand differently the meaning of Nature Parks. Difficulties in local production are mostly attributed to producers who are not engaged in organic production because an organic process does not influence the smooth functioning of the natural systems.

It is obvious that there is no single approach to coordinate sustainable local production in all parks in Luxembourg, apart from the list specification in the Upper Sûre Park. Because of this, a tension exists between park administration and local producers for a lack of engagements and insufficient communication schemes about sustainable production. It is most certain that, during the early days of the Our Nature Park, for example, local producers had much assistance in terms of what and how to produce local goods. However, today, things have changed. To be more explicit;

“It is due to lack of will by the local producers that things have changed... Local production is their (producers) activity and not ours (park administration). Even though local producers sometimes say that the administration does not want to help, they themselves do not want to work hard” (stated a park administrator).

As such, there is a void in the value of ethics necessary to foster sustainable local production in parks in Luxembourg. From this, it could be suggested that there is a need for appropriate

governance strategies to handle the challenges related to communication. Consequently, the next section describes the governance approaches in Nature Parks in Luxembourg, making highlights on how this is essential for promoting a local green economy.

5.5. Governance Strategies for Greening Nature Parks

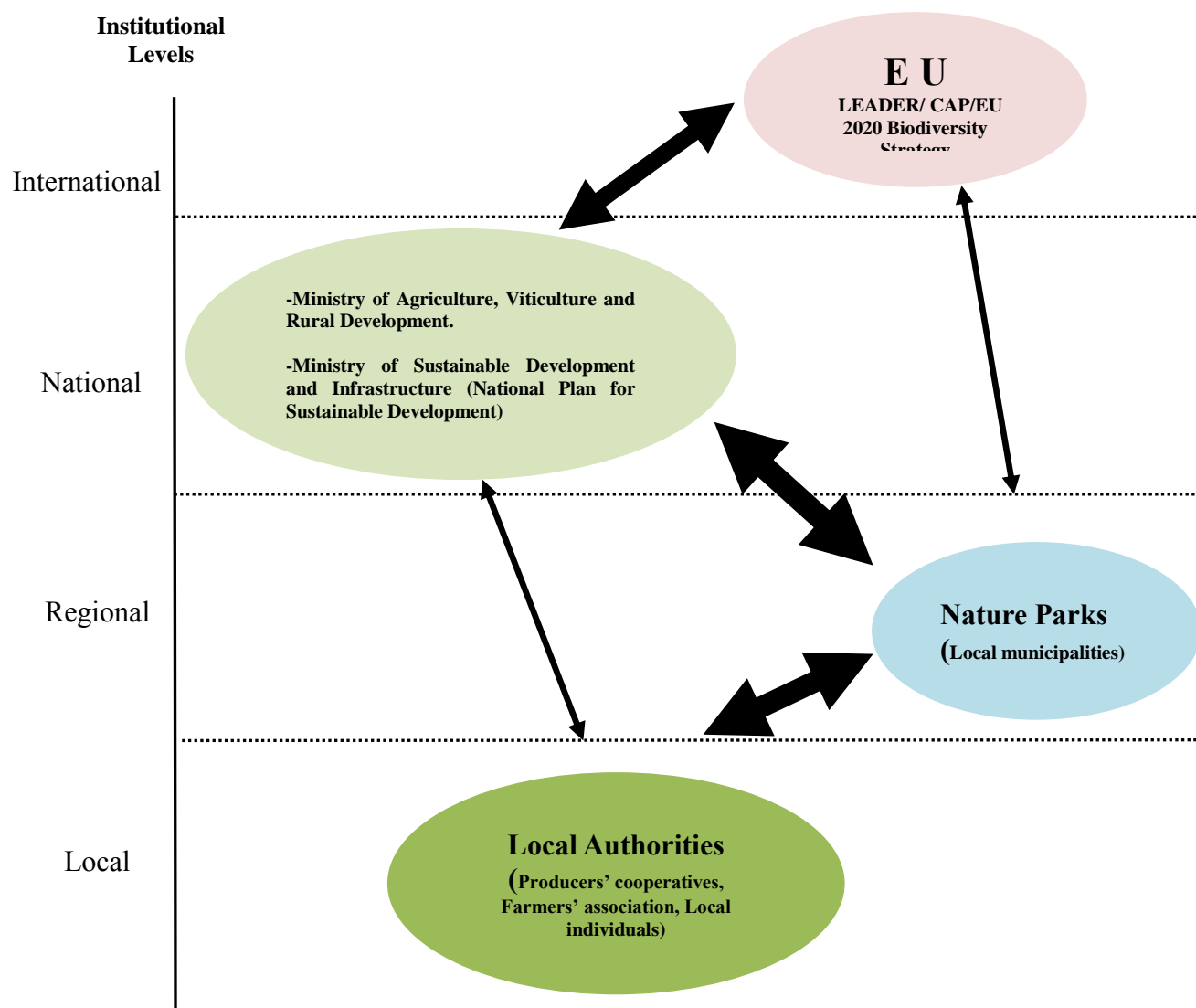
Governance in this section represents non-hierarchical independent institutions, with different power resources and functions, in a network, to shape decisions of sustainable development in Nature Parks. Nature Parks in the context of resource governance are not a self-enclosed territory. They represent a blurred boundary between dynamic engines of regional development; comprising autonomous networks of interlinked local municipalities, public and private institutions, NGOs and private individuals. Each of these groups has its unique character to add value to the decisions about greening park areas.

One of the greatest achievements of parks in Luxembourg is at the level of intermunicipal cooperation; a platform for common projects between local municipalities of park regions. This did not exist before the creation of the parks, even though cooperation occurred at the level of rural politics. Today, regional aspects of environmental management, social welfare and regional production exist in park areas through inter-municipal syndicates. This is a clear example of a “common language” (Qalyoubi, 2012); a green governance tool, which is about a unified code of practices, streamlined green accreditation of products and services, and consistent decision-making processes on green issues across different government levels. This has made questions of governance very crucial in the management of park areas in Luxembourg. In this section, discussions are focused on the responsibility of stakeholders in decisions about managing Nature Parks in Luxembourg. Equally significant, is the aspect of participation as an important principle of natural resource governance.

5.5.1. Institutions, Responsibilities and Relationships

It is an extremely positive advantage to have a mix of actors from the national, regional, local and even the international level, contributing in activities of Nature Parks in Luxembourg. Parks are important in promoting vertical and horizontal cooperation; a network of actors to deliberate issues of regional development and to portray regional potentials vis-à-vis other regions. The diagram below (figure: 21) is an indication that development of Nature Parks resides on an interactive process between stakeholders from four institutional levels; local, regional, national and international. The institutional division is based on responsibilities in Nature Park projects. For the fact that Luxembourg has no planning and development administration at the regional level, Nature Parks have been identified in this study as a form of region, regrouping a certain number of individual municipalities as a single body for decisions of sustainable development.

Figure 22: Institutional Relationships in Nature Parks (arrows represent degree of relationship)



Source: Own work

5.5.2. The European Union (EU)

The EU helps in financing selected activities in Nature Parks through some of its rural development programmes (LEADER and CAP). Also, the EU 2020 biodiversity strategy is an important policy tool on biodiversity protection and this is partially being simulated in parks in Luxembourg. Most agricultural support projects in Nature Parks are results of the LEADER programme. This stems from projects to develop agricultural products, to those

meant for developing labels for parks. The EU certification guideline used for labelling organic products in parks in Luxembourg is a good example to explain this statement. Through this, certain ecological principles are upheld within the local production chain.

Contributions by the EU for the development of parks in Luxembourg are made through public agencies (mainly Ministries of Sustainable Development and Infrastructure, Agriculture and Rural development). This explains the strong bond between national institutions and the EU. The EU aims at promoting a multifunctional agricultural approach for enhancing competitiveness and sustainability; development of organic production methods; production of healthy and high-quality food products; as well as strengthening the harmonious development of rural areas. This has been manifested in the EU 2020 biodiversity strategy where certain targets have been placed for nations to follow (refer to figure four, page 30).

5.5.3. *Public Authorities*

At the national level, public institutions mainly, the Ministries of Sustainable Development and Infrastructure, Agriculture, Rural Development and Forestry, are the most involved in managing the activities of Nature Parks. These institutions are responsible for coordinating all spatially relevant policies within the Nature Parks and between parks and other administrative levels. Guided by the green plan (act on the protection of the environment and the natural resources), the national bodies evaluate the ecological potential of Nature Parks and defines proposals for protection, restoration and management. They also enhance funding from the EU, together with quality information that could better the activities of parks. More than 75% of all budgets for park activities are made available by the government, indicating a significant relationship with Nature Parks' municipalities. Included, are the agricultural advisers made available by the government, specifically to the Nature Park municipalities.

The Ministries of Sustainable Development and Infrastructure in Luxembourg is mainly responsible for legitimising the creation of Nature Parks. As such, it has to make sure that certain conditions related to planning and development is respected by municipalities desiring the formation of Nature Parks. Through the National Plan for Sustainable development, various proposals have been envisaged for the development of park areas. Most prominent are those related to ecological protection, economic diversification and social development.

The “Chambre d’Agriculture” in the ministry of Agriculture and Rural Development helps specialists involved in the park administration as well as local individuals in park areas on how and what to produce. That is, they offer guides on the types of farming methods that are best for park areas, including advice on the types of products that are economically beneficial. It should be noted that national institutions do not in any ways intervene in what the local producers would want to produce. The choice is left for individual producers to decide. After all, governance is precisely about making choices (Pierre, 1999).

5.5.4. *Regional Actors (Nature Park)*

At the regional level, all the municipalities that make up the two official Nature Parks represent a regional organization engaged in running the development processes of Nature Parks. The institution is divided into various sections (executive, park administration, mixed working groups and regional syndicates) each of which has a specific duty to ensure the smooth functioning of the parks. In general, these bodies ensure the coordination of regional projects, motivate innovative production techniques and promote the marketing of regional goods. The Nature Park administration also coordinates projects between the national and local levels even though Nature Parks have no official regional status. This is because each municipality in park areas works individually to maintain its development plan, irrespective of the fact that there is a syndicate at the level of Nature Parks. This is a difficult challenge as

park authorities need some level of authority to influence certain policies for regional development, especially in circumstances of unsustainable production practices. Without this power, parks would be more of a political entity with a common voice for all the municipalities involved.

5.5.5. Local Authorities including Private individuals

As indicated above (figure: 21), the local level is composed mainly of local farmers' and producers' cooperatives. These are the main stakeholders that influencing the production economy in park areas in Luxembourg. They have the greatest decision on what and how to produce food and non-food stuff. Cooperate actors at the local level are tightly linked to Nature Parks because of the help they get from park authorities. Also, Nature Parks are the only regional institution where direct cooperation with local cooperatives could be found. Apart from the institutional functions described above, it is also important to note the participatory process between actors from the different institutional levels. This is in order to applaud initiatives by Nature Parks to promote co-operate ideas for regional development.

5.6. Participation as a framework for Nature Park Governance

Nature Parks in Luxembourg could also be regarded as a participatory instrument trying to regroup actors from different institutional levels or activity sectors. As observed, it is certain that parks are a mechanism for multilevel participation and a regional network for decisions concerning the management of natural potentials. Participation at the local level in Nature Parks in Luxembourg is a serious challenge which can be described as lacking or insignificant. Even though in recent years, there are trends towards improving the process of local participation, it remains a great problem for the administration of both parks in Luxembourg. Participation should be a key principle and practice that underpins the concept of Nature Park governance in Luxembourg. This is because it brings legitimacy and improves

the credibility and effectiveness of decision-making processes (World Resource Institute, 2004). However, participation will remain a narrow and insufficient component of the governance strategy if it is not accompanied by relevant questions such as; who participates? What are their demands and expectations? Under what capacity do individuals and groups have to participate? Will they participate in all aspects of decision-making or only in some selected phases? How do participants benefit from involvement? Relating these questions to the research focus, it becomes clearer that subjects of participatory governance are crucial for Nature Parks to pursue objectives towards sustainable development.

Through participation, stakeholders can identify conflicts and potential problems that might have been (under)overlooked at an early stage. This is very important as there are certain struggles in park areas, especially within the sector of local production. However, it should also be understood that, apart from its theoretical clarity, participatory processes are not always easy to qualify; especially in spatial projects that cut across different municipal boundaries and involving many actors from various policy scales. Since we have in this section started to pinpoint some difficulties involved in governing parks in Luxembourg, it is necessary to paint a general picture about the overall challenges for achieving sustainable development in these areas.

5.7. Difficulties in Promoting Sustainable Development in Nature Park Areas

In principle, the strategies adopted in Nature Parks are not negative inputs into these areas, even though the main problem may reside on what to do in order to get the best out of such regional initiatives. Like many regional projects, parks in Luxembourg are not exempted from certain drawbacks, explained here in terms of difficulties in promoting sustainable regional development.

5.7.1. Inadequate knowledge about the concept of Nature Park

Mose (2007, p.4) acknowledged that one of the advances made in protected area policies is the significant societal awareness about the meaning of area protection. However, in the case of Luxembourg, it is still difficult finding a middle ground about what entails a Nature Park. This is because at the beginning, some local stakeholders especially farmers thought of parks as interference to traditional production policies. Output was the main concern and knowledge about the concept of parks was insufficient. Consequently, till present-day, it has not been easy to effectively merge features of ecological conservation and economic development in both parks. Some local actors are not aware of the true meaning of Nature Parks, specifically when related to sustainable regional development. There are those who narrate parks only to environmental protection and those who see parks as a restriction to certain production habit. Those who understand the project in its proper sense are trying to cooperate with park administrators in organising local activities. This explains the limited knowledge stakeholders have about sustainable strategies for park areas. The local population is not well informed. Questions on what, how and where to conserve are still common among stakeholders.

While some local actors are thinking that only areas within immediate threshold around water sources are supposed to be protected, others are for the fact that the whole Nature Park should be guided by positive protective rules. Accordingly, there is a problem of individual versus collective interest, most often ending with the question; protection for whom? The idea is that Nature Park should be protected for the interest of those living within these areas and concepts about water quality for the entire nation is another question. It might be due to these misunderstandings that the amount of nitrate in the Upper Sûre Lake is increasing, though slightly. Generally, there is a need for proper educations about the meaning of Nature Parks as this confusion has been manifested further to include lack of interest and low participation rate by the local population in park activities.

5.7.2. Low rate of local participation in park activities

A particular difficulty that needs to be looked upon in parks in Luxembourg is the low rate of local participation in processes of decision-making. A possible reason is a lack of proper communication and knowledge about the importance of park activities in local development. It is still difficult for local individuals to understand the benefits of Nature Parks and how this development option would affect their own interests over time. This has made it challenging to influence efficient governance strategies for park management. It was also observed that methodologies to boost stakeholders' engagement are lacking. In this regard, parks are losing their credibility as instruments for sustainable local development. Therefore;

“It is not only important to create commercial activities that would attract critical mass needed for economic development in park areas. There should also be activities that will attract actors to participate in park activities. This is important to increase knowledge on the potentials of the region. Activities could take the form of sequential outdoor events to educate the local population on the value of Nature Parks. This is because there are certain people living in park areas because of interesting land prices and unconcerned about the importance of local activities”
(proposed a local producer).

5.7.3. Some Overambitious Objectives

Certain objectives of the two official parks are too ambitious, yielding little or no significant results for public admiration. It is clear that there are envisaged policies to improve economic, social and environmental performance in park regions. However, some of these are vaguely defined with no concrete strategies on how to achieve desirable outcomes. The idea of social development in both Nature Parks is a clear example of an unclear policy. This has gone a

long way to increasing doubts about the original vision for developing parks in economically unfavourable local areas, as well as impacting the contribution of the local population in park events. After more than two decades of the existence of these parks, some local actors are still finding it challenging to explain the practical benefits of having a Nature Park in the region. Some argue for the fact that there is less concern about the plight of the local population.

“This is because some projects are either too vast or vague or too ambitious which at the end yield little fruits than expected. Consequently, in such a situation, one could apply the term recession, even if it might not fit the case of our Nature Parks” (explained a local inhabitant).

5.7.4. Insufficient youthful participation in park activities

Besides an overall low rate of local participation, another serious difficulty in Nature Parks in Luxembourg is how to involve the youths in almost every park activity. Local youths are supposed to be nurtured in an earlier stage as future key actors in the park areas. In this way, they will identify themselves as part of local heritage and at least be part of park activities. There are known cases where businesses have collapsed because the owners were too old to continue and there was no one to take over. Another challenge is how to involve in the decision-making process, young people who are not originally from the park area, but residing in the region. This is an important population that can contribute in boosting the local economy through an increase in demand for regional products. A more radical, but practical means may be to contact this population group using individually addressed letters or emails. If this approach has been effectively managed in other municipalities in Luxembourg, such as the commune of Beckerich, then it can also be applicable in municipalities of park areas. This is because the strategy of direct contact is a practice of transparency about the needs of the local population and not those of park officials. Chapter 25 of the famous Agenda 21 points

out that, advancing the role of youth and actively involving them in the protection of the environment and the promotion of economic and social development is crucial for the long-term success of sustainable principles at all local levels. Nonetheless, there are certain steps towards involving the youths in park activities as observed from projects related to environmental education.

5.7.5. *Conflict of ideas and interest about regional projects*

Conflicts among stakeholders on regional projects are a common phenomenon. This at times goes as far as terminating any form of aid allocated to certain local producers by the park administration. There have been instances in the Our Nature Park where dialogue between the park administration and local cooperative have ceased for about six years mainly due to differences in ideas about how to manage the concepts of protection, production and development.

“It is a long way to be where we are now and if we had the help of park administration, we would have been somewhere far-off. Due to simple differences, the Nature Park project as it was defined in the beginning is far from being realistic today” (a local producer).

This might be a problem of operative management which needs to be dealt with urgently. That is, it is important to collectively design common principles that will eliminate conflicts in knowledge related to local production.

5.7.6. *Hesitancy in financing regional projects*

One other constraint for promoting sustainable development in parks in Luxembourg falls within the realm of inter-municipal cooperation, with increasing uncertainties about financing regional projects. For the fact that resources for regional development are not uniformly

distributed in the entire region, it was detected that some municipalities have abundant resources to promote activities such as ecotourism. Others have potentials for agricultural activities. Municipalities with limited resources are finding it difficult and reluctant to finance regional projects, thinking advantages are moving to other directions. This lack of enthusiasm might be because, some municipalities are faced with supplementary challenges influenced by the recent economic downturn. As such, they would prefer to allocate resources on other aspects much more financially favourable than Nature Parks. Few stakeholders are of the opinion that the name given to the Upper Sûre Nature Park, for example is an added advantage to a particular municipality and a detriment to others in the region. However;

“If each municipality exclusively focus on individual benefits while making comparison with others, things would always go wrong”... It is rather better to focus more on what a municipality would gain from a collective project. That is, before thinking of financing parks’ projects, actors should not look at what others are gaining, but should concentrate on what Nature Parks could offer to respective municipalities (a local authority).

From this, it is important to think of parks as a collective engine for engaging municipalities with similar characteristics for the benefit of the entire region. This is vital because a single municipality cannot make a Nature Park. With many municipalities coming together, offers from parks become numerous; complementarity is promoted and at the same time multiplying the marketing effects of regional products and activities.

5.7.7. Inadequate mechanisms to encourage organic production

The Food and Agricultural Organization (1999) has defined organic agriculture as a holistic production management system which promotes and enhances agro-ecosystem, including biodiversity, biological cycles, and soil biological activity. It emphasises the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, agronomic, biological, and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system. Looking at the agricultural sector in parks in Luxembourg, there are very few farmers within Nature Parks willing to engage in natural production processes that bring less harm to the environment. Also, even though some are willing to change lines of production towards organic styles, the transformation processes is very slow, considering the entire farmers' population in park areas.

The idea of organic production is an issue still to be reflected seriously in the agenda of those managing parks in Luxembourg. For about twenty years today since the two official Nature Parks were created, it is difficult to explain results in relation to organic food production. This is a sector which can greatly influence agro-tourism and boost local demands, looking at current rates of organic food consumption at the national level. Consequently, this is not giving Nature Parks a positive image, given that most people will philosophically reflect on natural products when thinking of goods originating from park areas. Care should be taken upon interpreting this point, considering that Nature Park authorities do not have any legitimate powers to influence local production processes. As such, negotiation and education are the only applicable tools remaining for convincing local producers.

The legislative vehicle regulating the creation of parks in Luxembourg described Nature Parks as guiding factors, with no legal responsibilities to regulate the local production of food and

non-food products. The idea of eco-friendly production is not clearly defined in the policy objectives of Nature Parks. There are no guideline criteria for local production in the Our Nature Park for example. This is making it difficult to really explain the sustainability principles attached to the creation of local products in this park area. Given that a practical approach to implementing the objective of quality production is lacking, it is unquestionable that some local producers will go their own way to producing what they think is good for the image of the parks. From this, it is clear that certain local producers are still to appreciate the rationale behind encouraging a particular type of territorial quality in the production pattern of Nature Parks.

The idea of eco-friendly production in parks in Luxembourg is a simple approach to address the issue of trade-offs between economic development and policies of nature conservation. From personal observation, local producers are clearly aware of the disadvantages of conventional production practices in a Nature Park environment. Therefore, the problem is how to combine ecologically moral aspects of individual values towards natural resource management with the economic belief of profit extension. It is certainly due to this challenge that there are three different types of production processes found in Luxembourg's parks. That is organic, conventional and eco-friendly production. Producers are faced with a complex challenge on whether to uphold standards of resource valuation or those of profit maximization. Indisputably, therefore, there is a need to counsel local actors about the importance of individual decision-making process in strengthening the future of regional production in park areas.

5.7.8. Hidden Trade-offs

The production of non-food items like cosmetic products is a lucrative economic initiative for some local producers in park areas. However, there are doubts concerning the production

chain of these products. One important mission of Nature Parks is to efficiently make use of regional resources to boost local potentials. Contrary to this notion, raw materials for cosmetics items are bought from regions outside the Nature Park. Cosmetic products are not the only case in point. Bottled chili-pepper-Oil is another product being produced elsewhere, but has the label of the Upper Sûre Nature Park for example. This is not a true representation of park areas. The motivation for having this product in a park area is mainly for profit maximization, with little attention to other important ecological factors. This could be likened to the notion of greenwashing even though this might be a hard word to reflect this point. It is important to note that;

“Nature Parks in Luxembourg cannot produce everything, let alone for exportation to international markets... Therefore, specialization in certain products whose input can only be found within park areas would be the only possible way out” (advised an agricultural specialist).

If one goes by this code, herbal tea production in Nature Parks could be a good example for explanation. There are presently thirty different varieties of tea products, produced under the Vum Sei label. As such, the herbal tea production is a form of specialization and a good example of valuing local possibilities.

5.7.9. Absence of a clear social objective

Improving social well-being is one of the main objectives of all parks in Luxembourg. However, hardly have there been realistic plans of action to accompany this objective. It was realised that the social sector has been missing quite substantially and this is an issue that needs to be addressed upon. Given that most of the small and medium size cooperatives are managed on family basis and requiring little or no additional labour, very few jobs are being

created in these parks. Even though it is difficult to clearly identify and quantify aspects of social prosperity due to its qualitative nature, one important aspect is to reflect on how to link the changing demography of Nature Park areas with the objectives of sustaining local production. This is very important in that an advantage of organic production per se is that, it requires more labour, thus opening ways for young and untalented youths in park areas to benefit from locally generated employment opportunities. This is, however, a concern that necessitates the contribution and action of all stakeholders related to the development of Nature Parks. Nature Parks can only be considered instruments of regional development if applied strategies could solve regional problems and attempting to achieve regional goals across the three dimensions of sustainable development (Hammer, 2007b).

5.7.10. Absence of Local Indicators to Monitor Performances in Nature Parks

Presently, there are no local indicators developed to monitor the trajectory of Nature Parks in Luxembourg. This is a major finding from the research. When the first park was created some twenty years ago, concerns about the region were on general subjects, without any concrete vision on specific sets of local indicators to analyse the approaches meant for realizing anticipated themes. As such;

Most of these objectives are only on paper and some of us on the ground know little if the objectives are attained or not” (Explained an agriculturalist)

Objectives to promote economic development for example are difficult to analyse because there are no pointers to accompany this particular vision. This aspect is important in attracting the critical mass needed for guaranteeing a sustainable economy in park areas. It might also be due to the absence of specific indicators that park objectives have been found to be very

ambiguous, painting a clear picture that parks want to obtain the ends without applying the necessary means.

5.8. Conclusion

The choice of the approaches applied in Nature Parks to influence local development in regions where they are found is to an extent having significant impact on the way these areas are being perceived as places of sustainable regional development in Luxembourg. It is obvious that Nature Parks are impacting the patterns of development in economically lagging rural areas. Their strength lies on promoting a “new rural order” that has innovation and diversification as main goals. To complete this chapter, it is important; at least, to make a simple summary of the different contributions parks have been impacting in rural regions. As such, the use of the word “significant” in the impact column in table 4 below has no statistical connotation. Instead, it is related to certain positive or relevant effects originating from Nature Parks’ strategies.

New ideas have been introduced in the sector of nature protection with some positive outcomes from features of environmental education, biodiversity management as well as expert advice on eco-friendly agricultural methods. Through the combination of traditional and contemporary economic strategies, Nature Parks have improved certain objectives in the sector of local production even though impact in this sector remains marginal due to insufficient sustainable practices, including slow transition to patterns of organic production. Improving social prosperity is a major challenge for parks in Luxembourg. However, there is a need for fresh local strategies to adapt existing demands and practically engage youths in projects of local development. Parks are also important tools for intermunicipal cooperation on issues related to regional development. Nonetheless, local participation in regional projects is a significant prerequisite necessitating serious attention.

Table 4: Main Impacts of Parks' Policies in Luxembourg

Regional development Strategies	Main Features	Impact		
		Significant	Marginal	Missing
Nature Protection	Environmental Education			
	Training on green skills			
	Soil and water management			
	Biodiversity management			
	Environmental advice on local agricultural practices			
	Eco-friendly agricultural methods			
Economic Development	Small and Medium Size cooperatives (Ecopreneurs)			
	Sustainable production and consumption			
	Regional marketing			
Social Development	Adapting regional strategies to changing demography			
	Engaging Youth in park activities			
	Employment			
Participatory Governance	Inter-municipal cooperation			
	Local/Individual participation in decision making processes			
General influence on Sustainable Regional Development	Presently			
	In the future	?	?	?

Source: Own Work

Moreover, targets defined in legal frameworks and national development programmes are also important benchmarks for intermediate appraisal of Nature Parks' outcome. The table (5) below reflects on the expectations from the National Programme for Sustainable Development, the National Spatial Planning Programme and the by-laws instituting Nature Parks in Luxembourg. It is a complement of table four above, highlighting the significance of parks in greening local economies. The most anticipated outcomes according to the National

Planning Programmes are obviously being attempted even though many strategies are still to be improved upon. It should be noted that social aspects are missing in the table because of not enough strategies to drive forward this objective.

Table 5: Appreciating Parks' Outcomes

Appraising Nature Parks' outcome		
Tool	Main Aspect	Features promoted by Nature Parks
National Plan for Sustainable Development National Spatial Planning Programme	Integrated Rural Development	<ul style="list-style-type: none"> – Diversify Local Economic Activities – Respecting Sensitivity of Local Areas – Reinforcing a multifunctional character of local agricultural – Promoting high quality produce – Attracting small and medium size eco-friendly businesses – Promoting regional identity – Improving marketing of regional products
Guideline Principles for the creation of Nature Parks (Law of 1st July 1993)	Conservation and Development	<ul style="list-style-type: none"> – Protect soil, water and air from harmful economic activities – Ensure conservation and restoration of natural and cultural heritage – Combine economic and environmental factors in local activities
Other Aspects common to all documents	Regional Governance	<ul style="list-style-type: none"> – Participatory local development – Empowering communities/individuals

Source: Own Work

Generally, Nature Parks have been attempting to integrate ecological and socio-economic principles of sustainable regional development. The extent to which these strategies have been impacting the economies of local areas is a matter of controversy.

Popular opinion from the survey conducted for the research indicates that presently, Nature Parks generally have a marginal impact on sustainable regional development. Thoughts are more in favour of the fact that parks could be an important instrument to influence sustainable regional development in the future if necessary steps are taken to improve relevant social and governance strategies.

Based on the research findings, it could be realised that there is currently a degree of willingness to encourage green economic strategies by those managing Nature Parks in Luxembourg. Despite certain deficiencies as tools for regional development, the overall objective of these parks represents a shift in thinking about sustainable practices necessary for managing resource rich areas. While this might be a subjective view, with supplementary ideas from the concept of green economy and Nature Parks, a more in-depth explanation could be made to support the above ideas. As such, the next chapter concretely examines Nature Parks as instruments for sustainable regional development in Luxembourg.

CHAPTER 6: Nature Parks: Instruments for Greening Local Economies in Luxembourg?

The concepts of green economy and sustainable development, as explained in the literature chapter, are characterized by unlimited interpretations, depending on the motives and approaches applied to attain these goals. If translated using the pillar approach, a simple conclusion would surely associate Nature Parks in Luxembourg with the vital Europe 2020 strategy, which aims at promoting intelligent and sustainable integrated development (Europarc Foundation, 2013). The UNEP's (2011) conception of the green economy also supports the pillar approach and emphasized that sustainable projects should mirror a broader perspective, integrating aspects of social well-being in assignments of economic development and environmental conservation. From this, one can conclude again that integrated development in the context of green economy is an important approach in the sustainability roadmap of Nature Parks in Luxembourg. This chapter relies on these statements to provide an explanation on the extent to which strategies designed for Nature Parks in Luxembourg are contributing in greening local areas and generally promoting sustainable regional development.

In providing a comprehensive analysis on strategies and principles instigated in Nature Parks; the idea is to combine theoretical perspectives with empirical information to appraise Nature Parks' performances. In realizing this, the chapter makes reference to policy documents and empirical information.

In this chapter, aspects of economic development and ecological conservation are discussed in parallel to clearly bring certain linkages between these two. The first part of the chapter examines the modifications brought about by Nature Parks to rural economies. The idea is to analyse how approaches meant for park areas combine principles of conservation and

economic development together with those of social wellbeing, in an attempt to promote innovation and diversification in local areas. Through this, the research cross-examines the aspect of added value as perceived by actors in park development. The central squabble in this segment is whether Nature Parks are instruments of “value creation” or that upon which “Value is added” This aspect is important in understanding the benefits for creating Nature Parks. Furthermore, while the second section discusses the social dimension of park policies, the third and final part of the chapter examines the participatory process for strengthening regional cooperation in park areas.

6.1. Parks as Instruments for Innovation and Diversification

For about two decades now, Nature Parks in Luxembourg have been trying to provide new approaches to diversify and especially, better qualify niches of local production. This has also improved the competitiveness of these local areas.

“Nature Parks have created awareness about diversity in local production. This is for the reason that new products such as tea and oil have been symbolically introduced within the production economy of the region” (Confirmed a park administrator).

As explained in previous chapters, innovation and diversification in regional economic activities are tactics towards responding to the dynamics of contemporary protected area management in Europe (Mose, 2007). Let us now look deeply into the aspect of innovation and diversification.

6.1.1. Reforming traditional development strategies (Integrated Development)

Literatures on protected areas (Mose, 2007, Hammer, 2007a) suggest that Nature Parks in the twenty-first century are struggling to meet up with the challenges of complex structural

changes witnessed by rural areas as a result of declining traditional development policies. Clinching on the different strategies described in chapter four, it is certain that approaches applied for the development of park areas have brought forth recognisable changes on existing systems (economic and ecological) while maintaining location status. As instruments of sustainable development (Ministry of Interior and Spatial Planning, Luxembourg, 2005), the two official Nature Parks in Luxembourg are theoretically expected to contribute to, and coordinate regional projects; introduce innovative approaches of land management; motivate economic and social transformation with integrated environmental perspectives, as well as promoting a sort of regional governance through participation and collaboration. It is clear from empirical explanations in previous chapters that coordinating regional development is not possible in parks due to limited administrative powers. As such, to promote innovation and diversification, parks are left with one main target; contributing to sustainable regional development (low-intensity objective of sustainable development).

There is a silver of optimism that Nature Parks in Luxembourg are on track to realize the low-intensity objective of sustainable regional development, as seen from contributions in projects related to nature protection and economic development for example. Low-intensity objectives simply bring out the contributions parks make to the region's economy in the three dimensions of sustainable development; the pillar approach (Hammer, 2007a). This has been made evident by the research findings on certain contributions related to aspects such as environmental education for green skill development, advice on agricultural practices as well as, the management of biodiversity for air, soil and water quality. In exploring these tasks, Nature Parks are in essence stimulating a regional green economy in the integrated context of UNEP (2011), and re-establishing fresh values in areas where more than 60% of the total land surface is used for agricultural production. Moreover, the above actions in these parks confer with Steurer's (2011) view on the green economy. That is, a local green economy is achieved

by investing in eco-friendly activities that combine long-term economic and ecologically prerequisites related to sustainable development.

Contributing to regional development adds value to regional activities and this aspect is highly crucial in defining the role (success and failure) of protected areas as integrated instruments for development (Mose and Weixlbaumer, 2007). Features of economic development are helping Nature Parks in defining this role. That is, promoting small and medium size eco-friendly cooperatives and sustainable production and consumption practices, including a reasonable marketing strategy, are all integrated activities bringing new impetus and acting in favour of Nature Parks.

Besides, Nature Parks in Luxembourg have been increasing efforts to raise strategies that help local areas maintain status as modelled landscapes for promoting sustainable integrated development. Survey results have revealed that although there are obstacles partly due to inadequate knowledge about the concept of Nature Park by certain local stakeholders, parks are struggling to overcome these. New patterns and processes for awareness building about the combination of traditional and contemporary approaches of regional development have been introduced. These strategies are trying to level the high expectations of local stakeholders about the modifications parks will bring to rural areas, not only in terms of biodiversity and nature management but also in relation to social wellbeing. The transformation of traditional crops and grains into finished products are all integrated projects that have led to the creation of new niches for the marketing of parks' products. Jungmeir et al. (2006) cautioned this notion, underlining that these are the frequently neglected effects of protected area development.

Moreover, local producers in park areas are trying to ensure that local economic systems conserve natural resources while at the same time balancing out the social dimensions of

sustainable development. Through this, Nature Parks are trying greatly in integrating policies for sustainable regional development (German Federal Agency for Nature Conservation-Bfn, 2013), especially as social features have become a central responsibility for protected areas (Hammer, 2007a). The research findings have shown that social elements of regional development in Nature Parks in Luxembourg are still lacking in terms of outcomes (mainly job creation) and therefore contradict the social principle of the concept of green economy as perceived by Boons (2011) and Cato (2009). Both authors have ascertained that the green economy is a better approach for organising procedures for social development through job creation. However, by trying to combine functions of protection and economic development, certain aspects of social transformation are being realised. That is, education for green skills' development in local primary and secondary schools and access to essential services (making available basic food and non-food items) are simple feasible social qualities even though not significantly recognised as a major impact of parks' policies (refer to table four in the result chapter).

Furthermore, the term “instrument” of sustainable regional development linked to discussions about the role of Nature Parks in reforming traditional development strategies is plagued by certain dualism. On one hand, parks are connected to development objectives and on the other; they are related to nature protection. Theoretical realities from Luxembourg's Nature Park models depict parks as sustainably constructed spaces that consistently strike to generate greater awareness about a change from a concept of pure conservation that segregates to a one that integrates. Tea production in the Upper Sûre Nature Park, for example, is an economic activity which takes into consideration ecological aspects of water protection. Also, beef production still in this Nature Park is another integrated activity that reduces production cycles and maintains a regional flow of income between local producers. The same holds for the cooking oil in the Our Nature Park. This is a complement of Hammer's, notion (2007b),

on the strength of twenty-first century protected areas in combining sustainable strategies. This could be further explained using the figures below.

Figure 23: Disintegrated Activities

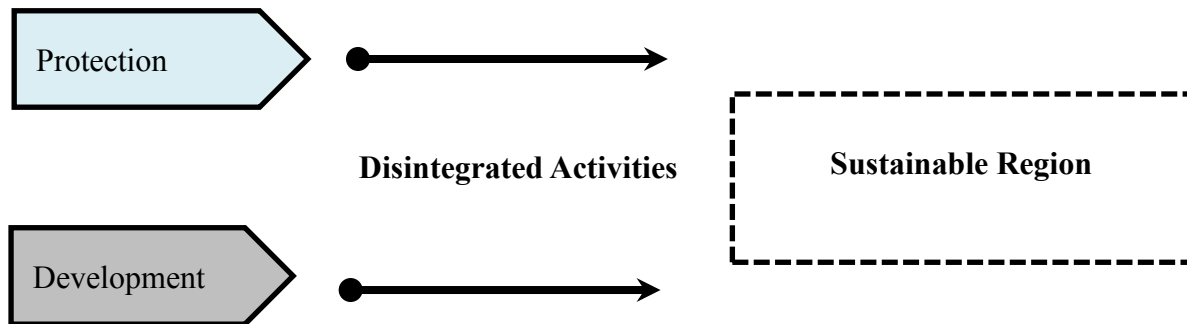
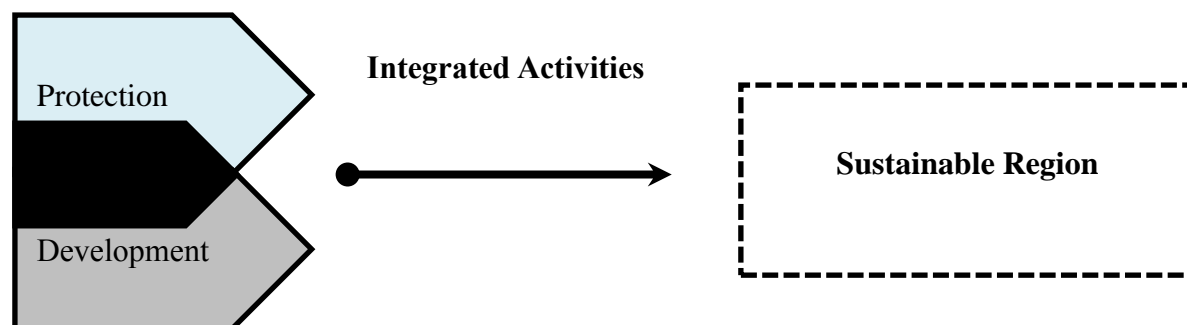


Figure 24: Integrated Approach to Nature Park Development



Source: Adapted from Jungmeier et al. 2006

As seen from figure 23 above, disintegrated activities are not always targeting the aims of sustainable development. In such a case, initiatives from interest groups will either favour protection or development objectives. Therefore, having stronger policies on how to combine elements of production with those of social prosperity and environmental conservation will distinguish Nature Park regions in Luxembourg and set standards for sustainable local development in these areas (Clement, et al. 2003). The Upper Sûre Nature Park is trying to promote integrated development (figures 24 and 25), by combining strategies of agriculture, regional marketing, and environmental education, including regional networking. It can be

seen from the diagram below that the scheme is a bit missing about social development (job creation).

Figure 25: Representation of integrated development in the Upper Sûre Nature Park



Source, Adapted from Upper Sure nature Park

Field (2008) confirms that integrated strategies such as those endeavoured in regional projects in the Upper Sûre Nature Park simulate the approach of “pure scientific preservation”. This is an approach to analyse and avoid conflict over development and conservation using sound scientific tools, especially tools of natural resource science that reflects practical realities of local development (tools comprise; land use management skills; techniques for decision-making and analytical knowledge; policy development and implementation; resource planning and policy analysis; social and environmental impact analysis). However, as indicated in the results chapter, some of these techniques, especially social impact analysis is insufficiently represented or absent in our study areas. To practically function as an instrument for integrated regional development, Nature Parks in Luxembourg have to embark

on an approach in which all strategies are simultaneously sustainable both individually and collectively. These are important complements for modernising traditional development strategies and generally for greening local economies.

Also, although there are conflicting ideas in park areas on how to promote integrated strategies in the framework of green economy and sustainable development, provoked mainly by differences in expectations, infrastructure-based understanding of development or just simply management incompetence, stakeholders have always tried to eliminate trade-offs. That is, efforts are always towards encouraging production practices which combine nature protection and economic development. We draw again on strategies encouraging the sustainable production of food and non-food items in both parks. As integrative protected areas for humans and nature, it is important that Nature Parks are combining protection and use functions within the meaning of sustainable development (Europarc Foundation, 2013). This is necessary to ensure that economic activities in park areas are not carried out perforce at the expense of rural ecosystems and social prosperity (UNEP, 2011).

Moreover, as explained above, findings from this research have revealed that policies for social development do not level environmental and economic strategies. Using this as a background argument, it might be very difficult to accept the integrated approach of Nature Parks if the welfare of the local population is ignored. This is because, leaving out the social dimension does not reflect the notion of pure scientific conservation explained above and because a green economy should improve social wellbeing (UNEP, 2011).

On the other hand, integrated development strategies that consider social perspectives is referred to as the “worth living integrated development” (Koroneos and Rokos, 2012). Such an approach is expected to combine protection and development purposes through various

green activities to improve economic, social and environmental scopes of sustainable development in park areas. In this way, the economic priorities in Nature Parks will reconcile objectives of social development, alongside needs for nature protection. As such, attempting to understand and practice sustainable development in a limited context without concrete reality for the manifestation of positive social effects is a major setback for Luxembourg's Nature Parks' policies. Although there is a necessity to upgrade social performances, stakeholders in Nature Parks in Luxembourg are trying to adhere to the values related to this objective as certain environmental and economic policies put emphasis on creating green jobs to improve the lives of vulnerable local individuals.

6.1.2. Adding Quality to Regional Products

By simply adding quality to the different regional goods, Nature Parks are symbols for some rural communities in Luxembourg. Pearce, et al. (1989) acknowledged that promoting sustainable production and consumption is one promising approach to contribute to a greener economy. In this sense, parks have been trying to influence a new dynamism in local areas. This could be seen from different projects with diversified orientation (production, marketing agriculture and ecology). Few small and medium size businesses mainly in the secondary sector have been created because of Nature Parks. Some of these cooperatives are engaged in eco-friendly production techniques in order to arrive at quality end products, which certainly guarantee environmental friendliness and nutritional safety when compared to conventional products from other regions. As such;

“Local consumers most often value local products by their quality and for this reason; local shops find it difficult to sell products that are not from Nature Parks simply because the quality cannot be confirmed” (concluded a commercial agent).

Following the above, Nature Parks are building consumer trust and awareness, encouraging producers to be more concerned with quality and not quantity, about environmental friendliness and not what is sophistically plausible (Tambunam, 2011). This goes in line with the notion of Latouche (2010); advocating that investment for green development should seek to promote quality strategies that reduce, reserve, restructure, revalue and reconceptualise, in order not to degrade local ecosystems and to have products that are most desirable and satisfactory. Also, one of the fundamental objectives of the green economic approach is to find innovative ways of responsible production and consumption. Nature Parks in Luxembourg are to an extent contributing to superiority in this aspect through quality control and labelling.

6.1.3. Encouraging a “third way of rural development”

Diversifying agricultural production is a main heritage of Nature Parks in Luxembourg. This confirms the notion that protected areas based on scientific preservation are rarely mono-functionally oriented, but rather fulfil a multitude of different tasks simultaneously (Mose and Weixlbaumer, 2007). Traditional farming practices are fast becoming less important as a driving force for local economic development in park areas. This is because production processes relied on mono-cropping with little or no desire for material transformation. Consequently, initiating platforms to revamp old-fashioned agriculture have been reducing the influence of strictly agricultural products to one of multiple rural activities also known as; “third way of rural development”. (Loloudis 1999, in Nastis and Papanagiotou, 2010). In this way, parks are influencing an approach of economic diversification that focuses mainly on agriculture and agricultural enterprises in rural areas (Nemes, 2005). The figure below helps explain how Nature Parks in Luxembourg have shown great strength in diversifying agricultural processes in areas where they are found.

Table 6: Diversifying agricultural activities in both Nature Parks

Diversifying Agricultural Production		
Before the creation of Nature Parks		Presently
Mono-production of basic raw materials mainly as animal feed.	➡	Production of a variety of raw materials for local cooperatives.
Little or no transformation of basic raw materials	➡	Transformation of greater portion of raw materials
Local production based on quantity	➡	Production based on quality
No quality controls guiding production	➡	A regional style guided by quality controls
Little or no marketing strategies for local products	➡	Marketing of local products through regional and beyond regional market outlets using local labels

Source: Own work

From the above table, parks in Luxembourg are to an extent refreshing agricultural practices in local areas. However, it should be noted that greening the economy with agriculture is a daunting, but essential task, requiring knowledge and management skills (FAO-Food and Agricultural Organisation, 2011). It is these credentials that some local farmers have considered insufficient, arguing that the agricultural specialists placed under the control of both Nature Parks lack certain familiarity with diversification in agricultural production. For example;

“Specialists in these parks are not really versed on what we (local producers) do and how we want it to be done. It is a shame because they were sent to assist us and we are at the moment not desiring their help”
(Admitted a local farmer).

Furthermore, agricultural diversification is more about making a qualitative leap in production and consumption patterns, rather than a quantitative leap to increase unsustainable levels of

outcomes. Nature Parks are making this possible through improving producer stewardship on land and increasing consumer awareness on the impact of their choices on the future of food and non-food items from park areas. Ensuring that there is a quality label for local producers in the Upper Sûre Nature Park is enough evidence supporting the notion of quality creation even though the production of organic products is still facing certain obstacles.

About 48% of EU budget in 2012 was a direct aid or income for supporting farmers. Among this group are certain agricultural practitioners in Luxembourg's Nature parks, who are very mindful about ecological balance and other traditional values in rural areas. Sustainable agriculture in Nature Parks is playing an important role in natural resource management, mainly through the preservation of biodiversity, landscapes, clean water and soil, including air quality. Mason (2003) acknowledges that sustainable agriculture is a farming philosophy that encourages farmers to work with natural processes, to conserve resources such as soil and water, whilst minimising waste and environmental impact. Through this, agroecosystem becomes resilient and profitability is maintained. Mason (2003) further highlighted several different systems related to sustainable agriculture with the organic system being one of the most prominent. This is because organic agriculture is a system that relies on natural inputs for fertilizers and pest control. Even though organic farming has not been efficiently developed in parks in Luxembourg due to limited policies to engage local investors, the activity is gaining importance among few local producers in the region prior to its effects on quality food production, soil maintenance and its potential for rural development (Caudle, 2006).

Concretely, organic agriculture at its best promotes sustainable rural development and provides a framework for codifying and marketing traditional practices; producing quality products for growing local and regional markets. If we consider the fact that Luxembourg has

one of the highest per capita consumption rates of organic products in Europe (Helga, and Lukas, 2012), one can conclude that organic agriculture could build a future for rural park areas that would want to portray the true values of sustainable development. In this respect;

“In as much as there are economic activities in Nature Parks, they must have ecological aspects related to them and preferably organic” (stressed an organic producer).

For the fact that quality controls are imposed on organic farmers, Nature Park administrators are in support of a management process where sustainable agriculture is the bedrock of the rural economy. Pugliese (2001) questioned the role of organic agriculture in sustainable rural development and concluded that contributions of organic farming to sustainable rural development may be conveniently discussed using four essential ‘ingredients’ in the ‘recipe’, in order to have balanced and appreciable results. That is, organic farming promotes innovation, conservation, participation, and integration.

According to Pugliese (2001), innovation is the only way to properly exploit what is currently perceived as the rural comparative advantage: natural amenities, cultural traditions, genuine food, unpolluted environment, closer interpersonal relationships, and open air entertainment. These are some of the aspects being encouraged by parks in Luxembourg, mainly through processes of sustainable production. Moreover, conservation policies protect the quality and amenity of rural landscapes; preserve the natural and cultural diversity. Participation encourages local people to become protagonists of the development work carried out in the area where they live and work while integration favours a multidisciplinary and multi-spectral approach of local development. Judging from these principles, initiatives in Nature Parks to promote organic agriculture generally lack the aspects of participation and integration. This is because some local producers are not willing to engage in sustainable production practices. If

this could be encouraged, organic agriculture could stimulate other positive goals and surely becoming one of the most important steps towards achieving a greener economy in Nature Park regions.

The problem of promoting organic agriculture in park areas does not reside only on the unwillingness of some local producers to engage in natural practices, but also on the tradition of local consumption. Even though survey results present high figures in terms of organic consumption, there is normally a difference in what people think and what they actually want or need. That is;

“Most people like the idea of quality or organic products emanating from Nature Parks, but lack the willpower to change modes of consumption away from conventional products coming from areas outside Luxembourg” (highlighted a local producer).

This testament coincides with the researcher’s view for a need for social learning processes to increase awareness on the importance of local products and to retain purchasing power within regional borders.

6.1.4. Nature Parks; Instruments of “value creation” or that to which “Value is added”

Regional development is complex and wide-ranging, and for protected areas, one very important aspect is to raise value added (Jungmeier, et al. 2006). As such, initiatives, strategies, projects or actions with effects on economic added values represent the “economic character” of regional development. Equally, social, ecological and governance approaches will signify individual value characters respectively. Valuation, as applied in this sub-section, differs from the more general cultural value systems reflected in terms of belief, attitude or ethics. It refers to instrumental values (Costanza, et al. 2000), which explains the contribution

of an object or action to specific goals, objectives or conditions. From this, a value in the context of parks in Luxembourg would mean understanding and appreciating the purpose served by these Parks. That is the benefits of designing Nature Parks and the resulting contribution they have on wellbeing through conservation of ecosystem services and local economic activities. For the fact that parks are spatially defined areas guided by certain regulations to control development initiatives, stakeholders are attributing values around these areas. Therefore, in general, values in parks would relate to the benefits from designation plus the benefits from ecosystem services. If stakeholders design sustainable strategies for Nature Parks, it is obvious that these areas would provide essential services.

The European Environmental Agency (2012) affirms that distinguishing value in a qualitative sense from a more concrete or monetary value for nature is a complex challenge. This is because the concept of value creation is usually more economic oriented, quantitatively characterized and relating to investments that are expected to deliver profits and create value (Fuller, 2001). From this, we conclude that the notion of added value in this section will be discussed in relation to the instrumental valuation (Costanza, et al. 2000), of ecosystem services found in park areas.

Added values in protected area development according to the EEA (2012) are the additional benefits generated through sustainable processes (production, education/know-how, management, cooperation and networking). These are some values promoted in parks in Luxembourg. As observed, although the notion of value creation differs among stakeholders in these parks, it is generally acknowledged that development policies adopted for these areas have been contributing in framing an integrated open system, linked through certain important socio-economic and ecological processes. This is necessary for building a sustainable region and adding value to existing systems.

Being one of the mechanisms for rural development, Nature Parks combine initiatives of nature protection with socio-economic and cultural development in the context of sustainable development. Parks create values in the form of sectoral benefits, ranging from the provision of resources (provisioning, cultural and supporting services) to fundamental processes that underpin their very existence (regulating services) (EEA, 2012). Therefore, Nature Parks are green infrastructures that generate values by recognising the importance of ecosystems, the services they provide and the complex ways in which they are connected to each other and the society. This is a central point to link Nature Parks with the concept of green economy. As green infrastructures, parks provide three major types of value; socio-economic, social and environmental, according to Dujin et al. (2008). (See table below).

Table 7: Values created by Nature Parks in Luxembourg

Samples of Values created by Nature Parks		
Socio-economic values	Social values	Environmental values
Jobs	Heritage value	Services provided by the ecosystems
Production and regional marketing	Recreational use	Protection against natural hazards
Capacity building	Scientific and educational use	Services provided by the species
Governance	Health and quality of life	Biodiversity/genetic heritage

Source: Adapted from Dujin et al. (2008).

Some values mentioned in the table above have been discussed under the result chapter, which explains certain positive effects of Nature Parks. A socio-economic feature like job creation is a bit far from being an added value, even though efforts are underway to meet up current challenges. Regional production, capacity building through educational and training,

recreation as well as biodiversity protection are some significant values developed alongside the creation of parks in Luxembourg. Regional production and marketing is one of the most important added values from parks and it would be necessary to improve understanding by having a bit more explanation on this aspect.

6.1.5. Value creation through Regional Production and Marketing

Value creation in production and marketing is more understood when looked at as a framework strategy put in place by stakeholders to sell out regional goods. In this case, a value is co-created between local producers in Nature Parks and consumers of regional products. The main objective guiding regional production in parks in Luxembourg is to harmoniously value natural resources and to have a common framework for organizing local potentials and for the marketing of regional produce. Therefore, in this context, value creation in Nature Parks is mainly focused on product quality. That is;

*“Nature Parks are symbols of particular areas with rich natural capital,
adding value to the different products emanating from within these areas”
(admitted a local administrator).*

Looking at the agricultural sector, for example, Nature Parks are doing better in terms of locally labelled quality produced goods, relative to individual products from the same area. This is an advantage as it has facilitated the identification of certain small and medium size cooperative that adds value to local products while at the same time sustaining adjacent environments. Consequently, the entire park regions have been affixed particular identities in the sense of production quality. For example, “BIO vun der Our” or “BIO vum Séi” are important labels mirroring the image of both park in fostering quality production in organic items such as potatoes, cabbage, cooked beets and carrots, wheat and spelt flour.

Figure 26: Biological label for Upper Sûre and Our Parks



Source: <http://www.naturpark-sure.lu/> and <http://www.naturpark-our.lu/>

From the above figure, certain characteristics have been established to regulate local production especially for goods carrying Nature Park labels. Regional products are, therefore, ambassadors of Nature Parks and they stand a better chance to promote the region through different brand names. Such benefits are absent in municipalities outside park areas. Consequently;

“Without Nature Parks’ products, the region and its economy would not have been the same as we find today” (echoed a commercial agent).

Quality branding is an example of Unique Selling Price (USP) which differentiates products from Nature Parks in Luxembourg with those from nearby areas. Like in the Morvan Nature Park in France where a USP is very active, the Vum Sei label is also proving very important as a USP in the Upper Sûre Nature Park in Luxembourg.

“This is very important to explain why products from our Nature Parks are better than those from other areas” (mentioned a local producer).

Moreover, the marketing of regional products from these parks is an interesting platform for selling out local potentials especially as, there is currently a lack of awareness about local traditional foods, traditional specialties, traditional agricultural practices and traditional ecological knowledge in Europe (German Society for International Cooperation-GIZ, 2011). Nature Parks through different brands are great added values in terms of regional awareness

and identity, portraying new and potentially innovative ways for rural places to sell economic and lifestyle opportunities (Connell and Mcmanus, 2011).

Besides, regional marketing in the domain of product qualification has a significant role to play in rural development (Tregear, et al. 2007). As such, the marketing of quality regional products from Nature Parks in Luxembourg does not only build a strong network of actors in the production and processing of regional goods, but might also increase employment opportunities within the network. It is also playing a great role in promoting territorial quality, due to the criteria of some local production procedures. The Our Nature Park is still behind in this aspect simply because of a lack of a USP, added to the fact that there are no qualification schemes designed for producers in this Nature Park. Also, a coordinated regional network to manage issues of regional branding is absent, even though pockets of cooperatives with local brands exist. Such a vacuum may be due to the notion that;

“Producers in this region are lazy” (stressed a park administrator).

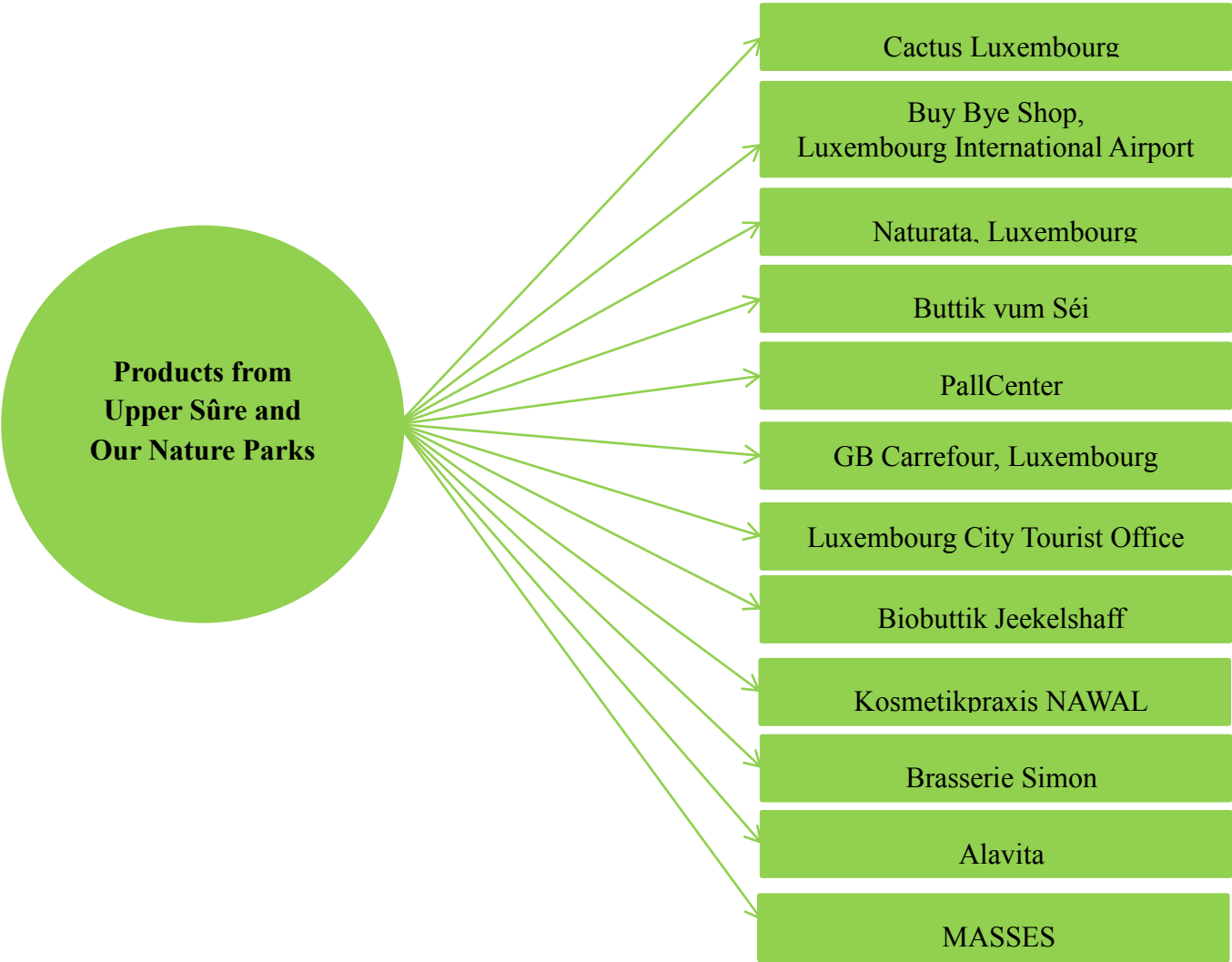
As such, we find here more of individual interest rather than a network for helpful co-opetition. Taking this into consideration, it is very difficult to assess the extent to which local brand names have been contributing to regional value added in the Our Nature Park.

Furthermore, innovation and diversification in parks in Luxembourg is meant to increase sales of regional products. For the fact that the image of products from these Nature Parks has spread beyond their peripheries, local producers are surely benefiting from increasing demands. That is,

“Although there are generally no official statistics, we have been having an increase in sales between 10-15 % yearly” (says a local producer).

This might be supported by the fact that Products from Nature Parks in Luxembourg could now be found in many outlets within and beyond park areas. The chart below gives an overview of the various channels through which park products are distributed.

Figure 27: Outlets for the marketing of parks' products



Source: Own work

Looking at the above representation, it is easy to confirm that demand for Nature Park products have increased, considering the fact that there are many channels, both regional and beyond through which local products could arrive at the hands of consumers. Cactus Luxembourg for example, started supplying products from both parks since 1994 and is

presently the number one outlet for food and non-food items coming from the parks. Concretely;

*“This commercial outlet supplies about 60-75% of our products”
(confirmed a local producer).*

Also, because these shops are scattered all over the national territory, the above representation provides an idea on how familiar Nature Park brands have become. This is an important value added in terms of regional identity.

Furthermore, strategies of modernization and diversification in Nature Parks have impacted the creation of new products for new target groups. This has been enlightened in the preceding chapters, explaining how parks are developing new approaches to increase the value of traditional crops. It might be difficult within the framework of this study to provide quantitative data as to the amount of new products, produced locally in park areas, in relation to national statistics. However, there is a degree of certitude gathered from the empirical investigation that presently, there is an increase in the amount locally transformed primary products in park areas. This is raising awareness on the effectiveness of parks in the overall regional production chain. The case of mustard seed, transformed to six different mustard products is a glaring example of value added through the creation new products. Consequently, the same area where mustard was previously planted only to improve soil quality is now several times more economically gainful. That is;

“If one compares a piece of land where traditional mustard was cultivated in the past with the present situation where Nature Parks have given an added value to this crop, the gain is several times more than before... We now have about ten times more gain than before, over the

same hectare of land. This is a good example of added value on land, where limited spaces provide enough profit” (explained an agriculturalist).

This confirmation is rather interesting, mainly because the concept of green economy is about the present and future gains, as well as reordering habits related to production (Latouche, 2010). In a related sense, sustainable production is a main activity for park areas as they are willing to boost regional competition using local potentials. As such, in a bid to promote value creation in the sense of green economy, Nature Parks are ensuring a fair use of ecological resources, sustaining ecosystem services and educating producers about a more meaningful choice (Willer and Lernoud, 2013).

In addition, the production techniques involved in the fabrication of certain products carrying park labels is a confirmation that certain producers are very willing to value local potentials, by enacting in natural production practices. One might be forced to conclude here that, the physical components of Nature Parks are also considered as resources to which values are added upon. Both Nature Parks are trying to promote organic production of food and non-food items. Moreover, stakeholders in these Nature Parks are trying to add value to local ecosystems through various techniques of environmental management. That is through environmental education, methods of semi-direct and advice on eco-friendly production methods, parks are limiting the adverse effects of agricultural development in protected areas.

“Imagine the quantity of nitrate in the Upper Sûre River without the strategy put in place by Upper Sûre Park... I think a great value has been placed on existing resources” (confirmed a Park administrator).

Additionally, to conclude on the aspect of value creation, this study argues that apart from economic and ecological benefits, certain governance values such as multi-scalar regional cooperation and interaction could be linked with the creation of Luxembourg's parks. In this circumstance, parks are promoting a form of governance characterised by the cooperation of actors from different levels, jurisdictions and sectors of the society (Leibenath, 2007). This is according to the new conservation paradigm (Mose and Weixlbaumer 2007), which advocate for participatory decision making in protected areas, so as to contribute to socio-economic development. Niedziałkowski, et al. (2012) supports this claim by reinstating that host communities are important tools in decisions concerning protected areas. Also, for the reason that Nature Parks are trying to encourage local actions to realise development activities manifested by the government, a consortium of actors is brought together through participatory governance.

6.2. The social dimension of Nature Parks' Strategies

Presently, it is very difficult to make conclusions on the social consequences of Nature Parks' strategies in Luxembourg. This is mainly because most social features are typically qualitative, with enormous challenges on how to find a balance among stakeholders' perceptions on the social benefits of parks and because presumably, the prosperity of most people living in the Nature Park areas is much more determined by external factors (mainly people living in park areas, but working in Southern municipalities). The United Nations Research Institute for Social Development (UNRISD, 2012) has made similar highlights on the social aspects of protected areas by concluding that, projects and policies for a greener economy have been dominated by environmental and economic concerns, with social issues consistently receiving the least attention. Practically, this is because there is little consensus on how the social dimensions of the green economy should be defined and addressed. This

normative conclusion somewhat mirrors what is presently happening in our case study areas. For the fact that there are no data sources with relevant information about the social reality of Nature Parks' policies in Luxembourg, analysis on this aspect can only be linked to externalities perceived during empirical exercises and which are motivated by investments in economic or environmental projects. That is aspects in which policies in Nature Park have a direct or indirect impact on individual/collective wealth.

Previously, an important social strategy for Nature Parks in Luxembourg was guided by certain rural activities such as regional trade fares and pastoral shows, organised to increase knowledge about the attractiveness and competitive advantage of park areas. However, due mainly to financial reasons, these activities have now disappeared in both Nature Parks. This was an important way forward to attract a critical mass needed to boost investment in local economic activities and which, in multiple ways, directly or indirectly, could affect local wellbeing through employment.

Also, empirical findings have explained that Nature Parks are linked to certain new job creation though not significantly perceptible. Even though it was practically very difficult to have data explaining the faith of parks in terms of job creation, the researcher tried in coming up with a table that would at least tell a bit on how certain local cooperatives in park areas are attempting to create employment.

Table 8: Number of employees in some local cooperatives

Cooperative	Number of Workers
Blei Vum Sei	8
Vie Vum Sei	16
Gebäck Vum Sei	85
Beo Head Office	3
Local Farmers under the Beo Cooperative	250

Source: Own work (Note that there is no confirmation if all these workers are from the parks or not).

Judging from the above table, it is certain that unlike in the Styrian Nature Park region in Austria where there is a well-structured approach to boosting local employment and achieve social sustainability (employing twenty-one persons from within the park area every year for one year), there is no such strategy in parks in Luxembourg. The numbers exhibited in the table above are marginal representation of the views of (Rasmussen, 2011) who explained that green economic projects are specific because they stimulate job creation in rural areas especially through the production of artisanal goods. It does not also reconcile Steurer's (2011) view that a local green economy is achieved by investing in eco-friendly activities that combine long-term social, economic and ecologically prerequisites related to sustainable development. Consequently, at present, some local citizens are questioning the approach of parks in generating employment activities, especially for the youths. That is;

“Nature Parks have done relatively little in the domain of local employment. Although the park administration could boost of some newly created posts, very little have been done in the overall social landscape. In this sense, it can be concluded that social development is not as important as economic and environmental development...Similarly, Nature Park

authorities most often forget about the local population who have otherwise given more to the image of Nature Parks than what they get socially from parks, even though this is hard to prove” (complained local inhabitant)

Still going by the ideas of Rasmussen, (2011) and Boons (2011), one important objectives of the approach of green economy is to generally help policy makers design social strategies and improve green job opportunities in areas with huge natural potentials. Nature Parks can be very effective in this aspect by involving aspiring young people in regional projects. This is very important in that young people of the countryside are one of the most hopeful groups for the adoption of innovations and the promotion of formulations that will help diversify economic activities in protected areas such as Nature Parks (Nastis and Michailidis, 2010). This aspect on greening local economies is very important for the reason that, if local youths are not instilled with the morals that parks are features of regional breadwinner, the future of Nature Park areas in Luxembourg might be a subject of neglect (Lopoukhine, 2008). In this case, the example of the Styrian Nature Park region in Austria is worth emulating. This will only be possible provided there is enough finance; given that one problem facing parks in Luxembourg is that of insufficient financial resources.

If Nature Parks in Luxembourg have to meet up current challenges and expectations regarding social prosperity, development projects have to at least reveal the maximum of benefits to be accrued by members of the public (Field, 2008). There are great uncertainties if Luxembourg's parks are actually 'doing harm' and/or delivering benefits to those living in these areas, even though ideally, their creation should be bringing benefits especially in terms of job creation to the local population (UNEP, 2007). In such a context, the approach of Social Impact Assessment (SIA) is important before, within and after project cycles, to

instigate trust towards the social accountability of ongoing ventures. Social impacts are broadly defined in the objectives of the two official Nature Parks in Luxembourg. That is;

“In the legislation effecting the creation of Nature Parks in Luxembourg, specifications as to how parks would increase wellbeing or add value to the lives of those living in these areas are lacking” (explained a government administrator).

Consequently, there are little or no explanations, as well as follow-ups within project cycles to see if social objectives are attained. For the reason that spatial policies in the framework of natural resource development can bring positive or negative impact on local communities, SIA on how to identify, avoid, mitigate and enhance outcomes for communities can have enormous influence on the success of development projects in park areas (Franks, 2012). It can be assumed that stakeholders of the Styrian Nature Park region in Austria had better assessed the social conditions of the region before agreeing to employ 21 persons every year. This is a good example that supports the views of Schreckenberg et al. (2010), that SIA is important to determine whether observed impacts are related to the protected area as an institution, the ecosystem being managed or some other factors unrelated to the protected areas. As such, social assessment tools can be in a form of local indicators, which is one of the most desirable instruments for measuring the effects of natural resource areas and to fix long-term goals, as well as creating a concrete governance mechanism. Talking about governance, the succeeding section explains the participatory processes involved in developing park areas in Luxembourg.

6.3. Participatory Processes for sustainable development in park areas

The research findings have made it clear that Nature Parks in Luxembourg are moving along a path for sustainability transformation. Hence, actions in these areas are not only about selecting between alternatives of economic and environmental projects, but also making sure that whatever course parks take, the desire and concern of the local population together with the objectives of the park administration are systematically looked upon and attained in a network manner. It has been supposed that projects in park areas often fail because benefits for local people are not realised, and their participation is neglected (Hirschnitz-Garbers and Stoll-Kleemann, 2011). As such, the approach of resource governance in the framework of green economy could be important in incorporating subjects of participatory development.

As confirmed in earlier chapters, the desire of Nature Parks in Luxembourg in developing a local green economy rests on concrete platforms for inter-municipal/local cooperation. Co-operate planning has been the guiding policy instrument this far, for implementing participatory processes in decisions related to Nature Parks in Luxembourg. Similar to the Upper Palatinate Forest Nature Parks region in Germany, parks in Luxembourg are positive examples of regional cooperation. This has been very important in setting the scene about discussions for combining protection and development in the context of the green economy and to involve as many actors as possible, with divergent notions about Nature Parks.

Agreeing that co-operate planning guarantees careful and harmonised efforts, that is, a governance approach in which no single actor has the ultimate power over decision-making; this strategy has helped in strengthening ties among Nature Park municipalities in Luxembourg, as well as improving the engagement of regional institutions and individual stakeholders. For example;

“The occasion to meet with actors from other municipalities and institutions to discuss aspects related to Nature Parks and regional development would not have been possible if there were no Nature Parks” (explained a local administrator).

From the above, parks are important tools for regional governance. Their enactment fosters participatory development principles for the integration of planning and action across economic, social and environmental spheres with respect to local Agenda 21. Through actors' network, Nature Parks provide opportunities for municipalities to engage in projects in a regional dimension rather than a single municipality. Synergies could now be created among sectors and across scales. Even though there are existing evidence about conflicts of interest especially between local producers and the administration of the different parks, a common language (Qalyoubi, 2012) to decide quality labels for the Upper Sûre Park, to agree on certain farming and biodiversity management techniques, as well as the marketing of regional products could still be heard in both Nature Parks. In this respect, parks strategies have gone a long way to promote collaborative governance in which stakeholders' co-produce goals and strategies and share responsibilities (Althea and Rehema, 2012) on approaches, rules, practices and institutions that shape how humans interact with the environment (UNEP, 2010).

Moreover, attempts to integrate development and environmental concerns are having some critical challenges for the governance of sustainability in protected areas (Adger and Jordan, 2009). This is almost exactly the same situation in Luxembourg where there are existing conflicts among actors, born by differences in ideas about how to proceed with certain sustainable approaches, especially those related to production. Generally, these struggles have a negative impact on parks' projects, going as far as eradicating worthwhile thoughts about

local development. Certain local producers, for example, have been downgraded when it comes to a proposal on how to manage production processes because of unwillingness by the park administration to assimilate their ideas. Arguments are normally in the area of trade-offs; the power to control and how to finance park projects; divisions over what aspect of economic activity needs to be encouraged or marketable; including the transparency approach for controlling quality products. These governance challenges in Nature Parks in Luxembourg confirm the notion of “paper parks” (Getzner et al. 2012). That is a natural area with no effective regulatory and management system. It might be unfair to refer to our case study areas in this manner. However, infrequent differences among stakeholders exhibit characteristics of the above appellation. It is, therefore, important to seek appropriate governance schemes that will incorporate and work for the benefit of all actors.

Besides, empirical evidence has shown that some local cooperatives in Nature Parks have been excluded from whatsoever help for about six years now. Consequently;

“one could witness a reduction in interested stakeholders across passing years, even though numbers are not very much important as quality engagement” (a park administrator).

In the Our Nature Park, for example, there is little or no cooperation between local producers and park authorities for some years now. That is;

“At the moment we (producers) do not have any cooperation with them (park authorities) even though there was a sort of understanding in the beginning when the LEADER project started” (explained a local producer).

Adger and Jordan, (2009) argue against this approach of local cooperation, insisting that institutions and policies to promote sustainable development in Nature Parks must seek to improve ways in which marginalised voices and priorities would be heard and included; frame and utilise dissimilar knowledge; and handle problems that are seemingly intractable because of simple misinterpretations. Governance challenges have most often been translated to little or no participation by the local public in park activities. That is;

“Even though there is a lack of culture for public participation in the Our Nature Park, for example, people in this area cannot identify themselves with projects which they are not part of... I remember during their (Our Nature Park) fifth anniversary, only very few people attended even though the invitation was handed to almost all persons in the park area... One reason for the lack of engagement might be that parks’ projects are too vague , which at the end yield little fruits as expected, making it difficult for the local population to recognise any concrete achievements. Another reason might be that local projects are directed more towards visitors (tourists) rather than to the local population” (a local inhabitant).

In the above circumstance, a new realism is necessary for policy and practice to navigate trade-offs, make difficult choices and ensure that Nature Park governance indeed integrate the worries of all stakeholders. Integrating viewpoints is necessary, especially for collecting information and for presenting participants with the opportunity to express opinions. This will make Nature Park management more effective (Getzner et al. 2012). Recently in the Upper Sûre Nature Park, efforts have been put in place to engage local participation by cooperating with regional secondary schools. This has helped to involve students and teachers. Through open courses in the “école du park” (park school), awareness about local responsibilities and

importance of parks in regional development is constantly being created. It is also important that such policies be accompanied by realistic outcomes to level the expectation of local individuals and make them more interested in parks' activities.

In addition, on a political note, Nature Parks in Luxembourg have been understood as essential instruments to make political decisions or contributing in realizing political views. In this way, parks are being perceived as new platforms, a network for local municipalities to portray regional potentials. In so doing, parks are ironically representing a regional level that is absent in the ladder of spatial planning in Luxembourg. This is indeed interesting since the national level certainly embraces feedbacks from Nature Parks, especially as they implicate many municipalities. Generally, Nature Parks in Luxembourg seek to work with and not for the local population even though hitches are present at times. Nature Parks are more of a stronger political level with a common voice to influence sectoral development activities of the state at the regional level. This is a clearer meaning of integrated development in administrative terms of sustainable rural development and also a reflection of the EU structural development programme implemented in 1998 to persuade a territorial approach involving partnership among sectors and between the levels of government.

6.4. Conclusion

In this section, attempts have been made to explain and connect certain practices for Nature Parks' development with contemporary debates on how protected areas should promote ecological, economic, social and participatory processes. Besides, the Europarc Foundation (2013) has put forth certain observations which can be helpful in summarising the strength of the case study areas in enhancing sustainable regional development. That is:

- Nature parks are driving forces behind regional development in rural areas, including establishing a joint platform for action for people in the region. They also

make a region more attractive by giving it an image and providing offers, as well as strengthening the “soft” site factors such as regional identity. That is, the work performed by Nature Parks contributes to nature protection measures as well as strengthening regional production cycles. This attribute clearly relates to Nature Parks in Luxembourg. That is, parks in Luxembourg helps to bring together local municipalities and through actions to promote sustainable production, certain labels to sell-out the image of park areas have been created.

- As supporters of integrative nature protection, nature parks know how to involve the population and land users in nature conservation. This notion is still a matter of debate in both Nature Parks in Luxembourg. This is because local participation is a major problem, including limited mechanisms to elaborate on the issue of conservation through sustainable production.
- Nature parks help children, young people and adults to learn more about the natural and cultural attractions in their region, based on qualified environmental education. This notion is fairly applicable in parks in Luxembourg even though youth engagement in the overall management of park activities is still a challenge.
- Nature parks involve their regions in European and international networks and participate in European projects and development programmes. This is related to Nature Parks in Luxembourg because these areas represent a regional interest at the European level. Parks help to galvanise funding for regional projects (Common Agricultural Policy and the LEADER Programme - Liaison Entre les Actions de Développement de l'Economie Rurale)

From the above remarks, Nature Parks are a fair representation of a model landscapes for sustainable development as described in the National Plan for Sustainable Development and the National Spatial Planning Programme. That is, strategies applied in park areas describe contemporary approaches for regional development. By combining of conservation and economic processes, there is hope that this will help to improve social wellbeing (integrated development). There is a strong desire in Nature Parks to move from disintegrated practices with conservation as the main guiding policy to a more systematic technique of resource management that merges aspects of nature protection with socio-economic development. This is a challenging task within the realm of integrated development, which Nature Parks are trying to encourage in two distinctive ways. That is integrated development in the sense of combining functions of protection and economic development and through strengthening regional cooperation in a governance point of view.

Fresher economic impetus is being encouraged in park areas, to transform local materials into consumable products. Credit is on the attempts to promote innovation and diversification mainly in regional production processes and this is being cautioned by certain guideline principles to promote quality production. Through this, respect (value) is placed on nearby environments and it has help to provide an ecological dimension of Nature Parks' initiatives. Although, endeavours to involve many local producers in the organic realm are confronted with certain restraints, park administration is partnering more with some cautious producers to move this goal further.

The chapter further points out that, strategies for social prosperity in Nature Park areas is a difficult challenge. This is because aspects of social development have been broadly defined with limited possibility for realisation. From this, the study agrees that there is a necessity for

more specific social reforms in order to let the local population feel the desired effects of having a Nature Park in their community.

The strength of parks in aspects of regional cooperation is that they stand in a more central position to link national and local objectives for rural areas. Precisely, parks signify a top-down and bottom-up instrument for local development, even though participatory processes at the local levels remains to be improved. From this, the next chapter concludes the entire thesis by briefly presenting the main results and implications of the study, together with some suggestions for further research.

CHAPTER 7: CONCLUSION, IMPLICATION TO NATURE PARK POLICIES AND THEORIES

This chapter summarises the research goals and the methodology for collecting responses for the research questions. It builds on previous sections that describe and analyse the research results (Chapter five and six), to make a review on the extent to which strategies in park areas are contributing in greening local economies and generally encouraging sustainable regional development. The focus was to understand how certain schemes meant for park areas are linked to contemporary debates in protected areas management, green economy and sustainable development in general. As such, the principal argument of the research thus far has been that, Nature Parks are marginally encouraging a local green economy through ecological, economic and participatory processes and the aspect of social development is still a major challenge. From this, the thesis maintains that a weak social strategy, including certain lapses in the aspect of local production and indigenous participation has made it difficult for stakeholders, especially local inhabitants, to completely accept parks as tools for local development. Therefore, attaining a green economy is more likely if park areas succeed in encouraging the integration of real social features with realisable consequences in projects of ecological conservation and economic development.

7.1. Main Research Goals

The central aim of this study was to empirically explain the up-to-date strategies for regional development in the framework of Nature Parks in Luxembourg. From this, the study had as objective to describe how parks combine objectives for environmental conservation with those for economic development, in order to improve social wellbeing (integrated development). This was intended to examine the ecological, socioeconomic and governance impacts, associated with parks in Luxembourg. Moreover, the study anticipated linking these

impacts with the concept of green economy. This was a means to explain how parks influence sustainable regional development. As a result of these objectives, four sub questions were investigated. These were all drawn from the main research question. Responses for these questions were divided into different categories, according to the research objectives. That is, ecological, economic, social and governance strategies for greening economy of Nature Parks in Luxembourg.

7.2. Summary of Main Questions and Research Findings

The main research question reflected on the extent to which strategies are contributing to the appreciation of Nature Parks by local, regional and national stakeholders, as instruments for greening local economies and promoting sustainable regional development in Luxembourg. As explained earlier, this was a strategy led question, which in a sort, was intended to search for the bond between policy, practice and theories of Nature Park, green economy and sustainable regional development. The focus was to identify the distinctiveness of Nature Parks in redefining regional development, and the qualities which make these areas more competitive with respect to others. This question was also because of the researcher's desire to understand the significance of Nature Parks in upholding the three-layered bottom-line principles of sustainable development, together with other aspects of resource governance. Mose (2007) strengthens this by highlighting that, strategies planned for Nature Park areas are expected to recognise the interplay of the above features of sustainable development. Through this, protected areas in the twenty-first century will be moving away from the mono concept of conservation to a multidimensional perception of natural spaces. As such, the research holds that it is the linkage between ecological, economic and social activities, including certain governance processes that form the basis for understanding current approaches of Nature Park development in Luxembourg.

7.2.1. Ecological Strategies

The first sub-question for this study was directed towards understanding the ecological approaches meant for park areas in Luxembourg. That is, the main policies for conserving and improving local ecosystems. As such, empirical information corresponding to aspects such as environmental education, biodiversity contracts, agricultural advices, including agro-modernisation programmes were gotten as main strategies.

From preceding chapters, attempts have been made to explain how Nature Parks in Luxembourg are trying to conserve local aquatic and terrestrial ecosystems, as a means to promote appropriate use of local resources. The approach of environmental education is helping parks in the struggle to improve local knowledge, with respect to the values and skills necessary for promoting sustainable development in resource-rich areas in Luxembourg. It was realised that through outdoor activities, young pupils in regional schools are being informed about the importance of available ecosystems. A good example of this strategy was cited from the “Eau Mobile” project in the Upper Sûre Nature Park. Through this, students are guided with off class experimental exercises on how to protect the Upper Sûre Lake. This approach is important in the sense that, it frames learning events within the scope of environmental economic activities. This is meant to caution young people on the effects of related economic activities on nearby ecosystems. The UNEP (2006) has branded this approach as Education for Sustainable Development (ESD). That is, an approach which has as goal to communicate the main beliefs underlying sustainable development with the intention of making students more ethical and responsible. In this circumstance, the strategy of environmental education in parks in Luxembourg mirrors the views of Swayze (2010). She insisted that environmental education for sustainable development offers learners a context for developing active citizenship and participation, embracing the complexity of the interdependencies of ecological, societal, and economic systems. That is, ESD supports

flexibility, creativity and critical reflection and fosters a sense of personal responsibility for the planet. It is meant to help respect and preserve histories, value cultures and communities, caring for the environment and taking action to create a fair, healthy and safe world for all. Therefore, through environmental education, parks are promoting essential bottom up roles related to ecosystem valuation and protection.

Moreover, apart from environmental education, biodiversity contracts signed between local farmers and the administration of Nature Parks is another approach to limit certain harmful practices along sensitive water passages in the two parks in Luxembourg. In the Upper Sûre Park, for example, the biodiversity pact is proving it worth, with many farmers engaging in the process to limit intensive farming along the Upper Sûre River. A Similar situation also exists in the Our Nature Park under the river partnership. As a complement to the strategy of biodiversity contract, advice on agricultural practices is another example of best practices for ecological protection in parks in Luxembourg. Through this approach, agricultural specialists stationed in park areas are helping to increase awareness on potential environmental risks of unsustainable farming practices. Similar to other strategies, this approach is grounded on practical aspects. It is mainly for cautioning local farmers on how to maintain soil stability, reduce the use of harmful chemicals for plant growth, as well as for encouraging organic production. This notion of promoting organic agriculture in park areas is very efficient in respecting natural lifecycles (European Commission 2014).

In general, the ecological approach applied in parks in Luxembourg is an example of how resource areas contribute to the EU 2020 biodiversity strategy. That is, using local policies for preventing biodiversity loss and restoring existing ecosystems. In this way, parks are encouraging the local population to be actively involved in the management of local resources. This is an example of an ecological approach to territorial development (Grand-

Ortiz, 2011); a means to manage the natural environment as an inclusive system (Daly and Farley, 2010). This has also been described as the ecosystem management approach (UNEP, 2009). It is a strategy that recognizes humans as an integral component of ecosystems, favouring the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. From this, it is clear that parks are systematically favouring approaches that respect natural boundaries by simply recognising the value of ecosystem services (Pigmaire, 2011). Consequently, Nature Parks are a strategy for sustainable land use management (SLM). That is parks favour procedures that integrate environmental management with food and fibre demands while sustaining ecosystem services and livelihoods (World Bank, 2006).

7.2.2. Economic Strategies

The second research question aimed at explaining Nature Parks' approaches for influencing sustainable economic development through local production. This provided a means to assess the sustainability aspects involved in local production processes. Mose (2007) and Hammer (2007a, b) have explained that Nature Parks are not tools for conserving local resources only, but embrace and encourage other sustainability features such as local economic development. As seen from the results of this study, Nature Parks in Luxembourg are doing great in their capacity to regenerate regional economies, mainly in the domain of sustainable production. This is enough evidence to argue in favour of these areas as multifunctional instruments of the National Spatial Planning Programme, which insist on innovation and diversification in park areas. Innovation and diversification in both parks have taken the form of product transformation. A greater portion of locally grown cereals, for example, are now being transformed in the Upper Sûre Park area to bring forth quality new products. This is in accord with the notion of ESCAP (2010); supporting that greening an economy is about new opportunities for economic development.

Another interesting finding was that a certain identity has been developed through park labels and this has been considered a great added value in the marketing of regional products. This finding complements Chapple (2008) and Chapple, et al. (2011) in that, investment for a green economy recognises innovation in marketing strategies for the creation of new values. For over twenty years now, the two Nature Parks in Luxembourg have been playing significant roles in promoting new forms of agricultural production, which are to a certain degree compatible with the immediate surroundings and are proving beneficial to local producers and the regional market. These new eco-friendly production approaches have been stimulating economically sensitive domains while increasing varieties in the amount of locally produced goods. Quality tea, beef and cereals products are contributing greatly in boosting regional identity. This has been made categorical in the previous chapters where Nature Parks' products (Vum Sei, Beo and Ourdaller) are setting particular standards, especially as park labels are guided by certain regulations. Eco-label helps identify products and services that have reduced environmental impact throughout their lifecycle; from the extraction of raw materials through to production, use and disposal (European Commission - Environment, 2014). This is important for promoting environmental excellence during production cycles. Food and non-food items with eco-labels could be found in and beyond the peripheries of Nature Parks and this has fairly increased sales for local goods.

Moreover, locally obtained raw materials are not exported as before but are now being transformed using sustainable guideline principles prescribed by park authorities for adding value to local products. These aspects are very important since an essential task of the green approach rests on keeping alive the economy through investments that are worthwhile economically, environmentally and socially (UNEP, 2011).

Also, notwithstanding the struggles made by Nature Park authorities to improve agricultural practices that have little or no environmental impacts, there are still some gaps, found in strategies for influencing organic agriculture in park areas. This is an agricultural system that seeks to provide consumers with fresh, tasty and authentic food while respecting natural lifecycle systems. It is the basis for environmental protection, animal welfare and consumer confidence (European Commission, 2014). It avoids or largely reduces the use of synthetic chemical inputs such as fertilisers, pesticides, additives and medical products (Eurostat, 2014). For the fact that some stakeholders in park areas are still very much involved in conventional agricultural processes, one can conclude that the overall goal of sustainable agriculture has not been attained in Nature Parks in Luxembourg. This is another glaring challenge, explaining one of the limitations of Nature Parks in contributing to quality regional production. Even though efforts are being made by practising organic farmers to convert conventional counterparts, under the project; “Organic Farmers in Nature Parks”, a major finding is that most local producers are still sceptical about the importance of such a transformation, thinking that this will reduce profit. The UNEP (2011) contradicts this notion by insisting that, profits from organic agriculture are good. This is because consumers command high prices, about 20% more when compared to conventional agriculture. In this sense, farmers’ incomes are generally high and this can give a new life to rural communities. This is an important argument for consideration because presently, there is a high demand for organic products in Luxembourg, but only a hand full of farmers is engaged in organic farming in park areas.

Moreover, it has been explained by the research results that there are certain hidden tradeoffs; where goods produced from different areas are carrying the banners of Nature Parks in Luxembourg. It is clear in this case that there is limited transparency in the entire production chain of certain goods from parks in Luxembourg. From this, the research holds that

transparency in local production in parks in Luxembourg should be well explained because goods have different effects on the environment depending on the source of raw material. That is, products whose raw materials are not from within park areas will surely entail certain negative externalities from long distance transport. As such, to attain an important level of sustainability in regional production, local producers in park areas must completely explain all effects related to production. Details should not only be limited to quality criteria made available by park authorities but has to take into consideration the entire product lifecycle. This is very important in building consumer trust. The example from the Upper Palatinate Nature Park in Germany confirms that all basic raw materials for Nature Park products should come from within the parks. Therefore, as an instrument, parks should rely on long-term initiatives using proper potentials of the area and balancing out economic, social and environmental development. Regional producers' in parks in Luxembourg should be careful about relying on foreign enterprises for certain basic raw materials because any potential collapse of these establishments would possibly lead to negative consequences, reflected either by unemployment or loss of local identity.

In general, it is clear that the economic strategy of parks in Luxembourg lies on encouraging sustainable production of local food and non-food items. This is important because sustainable production aims to do “more and better with less,” reducing resource use and degradation as well as improving the quality of life for the local population (European Commission, 2014). It is about promoting resources while offering opportunities such as creating new markets, generating green and decent jobs, supporting organic production, providing opportunity for a more resource-efficient, environmentally sound and competitive production techniques. Pinto (2006) concludes this point by remarking that an agricultural production system is sustainable only if its development rests on three pillars: economic feasibility, social fairness and environmental sustainability. These patterns and processes of

local economic development are essential for the achievement of a green economy; defined as an economy that results in “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP, 2011).

7.2.3. Social strategies

The third research question examined the social aspect of Nature Parks’ strategies. It had to provide understanding on how Nature Parks’ strategies influence social development. Principal attention in this section was on local employment.

The central argument about social development in parks in Luxembourg is that, applied strategies are to an extent promoting environmental and economic process, but the aspect of social wellbeing is still a major challenge. It was made evident by the research findings that objectives related to improving social wellbeing are broadly defined in the principles guiding the establishment of parks in Luxembourg. Besides, proper tools for social impact assessment such as local indicators to monitor parks’ impact on social development are absent. Also, youth engagement which could play a great role in this aspect is lacking. Consequently, doubts on social impact are often manifested in the form of; winners and losers of Nature Parks’ development in Luxembourg. While winners are thought to be gaining something tangible from the establishment of Nature Parks, losers refers to those who seem not be realising anything from the creation of Nature Parks.

Boons (2011), has disputed that stimulating a green economy is also about putting in place policies for social development especially as current economic systems are not inclusive in many aspects. Looking at the social strategy for parks in Luxembourg from this angle, it is obvious that this aspect falls short of Ocampo’s (2011) view in that, a green economy is an all-inclusive concept, integrating economic, social and environmental approaches of sustainable development. From this, the United Nations Research Institute for Social

Development (2012) argues that, any imbalance in social development should be corrected if protected areas are to be involved in promoting a regional green economy. This is because social policies can perform multiple functions in any economy, including those of protection and can help to test whether Nature Parks are making a positive or negative contribution to the livelihoods of people living immediately adjacent or further away (UNEP, 2007). From this, the research argues that policies in park areas should address how local initiatives will impact different social groups and how such actions contribute in achieving the social objectives inherent in the concept of green economy and or sustainable development. As explained in the analysis chapter, social impact assessment is an important tool which could be used in this situation to obtain useful information that could increase relation between local population and Nature Parks. In this way, parks will be addressing the challenges for linking ecosystem conservation with human wellbeing.

Before now, a number of persons in park areas have been expecting that Nature Parks through it various policies would be able to improve local welfare especially in the line of job creation. Although some local cooperatives have been trying to boost local employment, it is argued that this is insignificant. As such, it can be disputed that investments in parks in Luxembourg are not related to Rasmussen's idea (2011) on the basis that, such initiatives are expected to stimulate job creation because approaches in park areas through local production processes cannot be underestimated. As such, one might conclude that Nature Parks' policies are lacking in implementing strategies for social development especially when it comes to job creation. This is certainly true because with the idea of combining environmental preservation with priorities of economic development, expectations are high about the social contributions this will bring in any protected region (Mose, 2007). However, Cia et al. (2011) warns that in order to realise the green economy through jobs, a matching educational system and personnel structure will be required. The question is whether local individuals in park areas are indeed

versed with the necessary educational skills for green development. Generally, Rodríguez-Rodríguez (2012) warns that, if social and economic objectives are compatible with biodiversity conservation or improvement, attempts should be made to integrate those within planning and management. If they are not, their attainment should be considered no more than theoretical goodwill, no matter how tempting development promises may look like.

7.2.4. Governance strategies

Question four of the research was based on the institutional relationship existing in parks in Luxembourg and how local participation is an essential component of the overall governance approach. This was meant to understand the different stakeholders and the role each of these has in managing development processes in parks in Luxembourg. The section was generally intended to understand the importance of participatory governance in the development of parks in Luxembourg.

A central finding was that, inter-municipal cooperation for a sustainable region is one of the most important achievements by Nature Parks in Luxembourg. This reproduction of multilevel stakeholders reflects one of the main philosophies behind the United Nations Conference on Sustainable Development (RIO+20). That is, it is necessary to frame appropriate networks at local, regional, national and international level that would help make greener the world's economy. By bringing together a network of actors, Nature Parks are promoting noticeable aspects of sustainable development through institutional architectures for a green economy (Najam and Selin, 2011). This is a significant contribution towards encouraging a win-win situation where both top-down and bottom-up objectives are simultaneously dealt with.

Further emerging from the research is the idea that Nature Parks in Luxembourg are an occasion to develop a regional level for planning sustainable development. Parks justify the

intermediate roles of regions in encouraging goals for attaining sustainable development from national and local levels (Clement et al. 2003). From here, parks could therefore be well thought-out as invisible regions in a country where decisions about spatial planning and development are managed basically at the local and national level. Therefore, Nature Parks confirms the National Spatial Planning Programme and the National Plan for Sustainable Development as regional instruments for territorial development, integrating activities across socio-economic and ecological spheres.

The governance system practised in Luxembourg's parks seeks to ensure that all actors are implicated to better manage and develop local potentials and to promote cooperation among them, on topics related to protected area development. However, it was realised that local participation which is supposed to be acting as a critical contribution is still demanding. In some cases, divergence in ideas about the operational qualities of park development, for example, has been transformed into actors' splitting-up. This has been mentioned in the Our Nature Park, where all sorts of communication between some local producers and park authorities have ceased for about six years now. Turnhout et al. (2010) have claimed that participation is a prominent feature of decision-making and planning processes, with the potential to strengthen public support and involvement. For the reason that the functions of protected areas are shifting from purely conservation to include other aspects of economic and social development, institutional structures to conclude decisions about these places needs to evolve. Therefore, it is essential to readjust the governance framework in parks in Luxembourg, to make sure that all voices are heard through active participation. This is a bottom up approach to involve local actors in actions concerning their very future (D'Aquino, 2007). Bottom-up participatory approaches to protected area management may be more resource and time-consuming than technical top-down approaches, but they are generally accepted better by all stakeholders and, as a result, they are often more effective and enduring

(Rodríguez-Rodríguez, 2012). This is an example of participatory development or collaborative governance through open discussions and other methods of representative practices that could be properly implemented to involve all stakeholders in parks in Luxembourg. This will in a way promote fairness or equity in decision making. In the Protected Planet Report of 2014, UNEP recommends that, protected areas should consider equity because this is an essential feature of governance (Juffe-Bignoli et al, 2014).

Notwithstanding the different strategies applied in parks in Luxembourg, the study has highlighted some obstacles influencing Nature Parks' policies towards sustainable regional development. Presently, there are certain general challenges influencing strategies in Nature Parks. A major obstacle is the lack of understanding about parks as tools for sustainable development. This is a factor of insufficient knowledge as actors have different views about how parks can effectively contribute to sustainable regional development. Certain actors think of parks as areas for conservation only, while others reflect on either the economic or social facet of parks' development. Other actors are more in favour of the concept of integrated development originally designed for park areas. Consequently, there are certain divisions on which path to follow in order to promote sustainable outcomes in park areas. It is understood that this difficulty is as a result of differences in goals and expectations among stakeholders involved in the development of parks in Luxembourg. That is, most public actors would want to encourage ecological principles thinking this is the most important aspect in protected area management. On the other hand, local actors would prefer aspects related to economic and social development, giving that these would have direct or tangible consequences on local citizens. As such, the research contends that, the issue is about finding right balance when planning Nature Parks' strategies and that this should be guided by intensive awareness building on the conceptual and practical meaning of a Nature Park in Luxembourg.

Also, looking at the actual size of the parks, there is confusion or uncertainty among some stakeholders if existing parks are large enough to operate as separate entities for regional development. Some municipalities, for example, are interested in merging the two official parks; so as to have a wider region that is presumed would improve opportunities. On a contrary, others consider the idea not good enough, arguing that this will slowly, but surely erodes the power of individual municipalities over certain decisions related to regional planning and development. Consequently, this has escalated tensions, extending to conflict over concepts of local development and deepening into situations where a municipality (Rambrouch) situated right at the middle of the Upper Sûre Nature Park had to redraw its participation from all park activities and completely seizing to becoming a member of the park. Therefore;

“Nature Parks should not be a political administrative area where a municipality or a major actor could retire from activities at any time deemed necessary, but should be considered a geographical region for all actors by all actors” (advised a local administrator).

This recommendation is important because in regional initiatives like Nature Parks, it is necessary to have a common code that will engage all actors and which will resolve struggles, control and dominance over natural resource development (IDL group, 2013). As such, measures to incorporate ideas from all local municipalities that make up parks in Luxembourg should be an important framework tool in the agenda guiding decisions about these areas.

Furthermore, it is practically difficult for a single municipality to constitute a Nature Park in Luxembourg. From this, the research holds that disintegrating from the Nature Park union is a sign of weakness in regional cooperation and this will practically decline the strength of the

region as a force for encouraging participatory processes for sustainable development. Even though size does not really matter in explaining the concept of regional development, it has an important role to play in terms of overall decision making. That is, all things being equal, the wider the surface area and the more actors are involved, the greater the chances for a collective voice over decisions of regional development.

Additionally, because all municipalities within the perimeter of Nature Parks do not get the same reward for participating in park activities, there is nervousness in financing park projects. Some municipalities have even gone as far as questioning the labels used by parks for regional products, arguing that stickers favour particular municipalities. This is a complicated challenge as it will be difficult for each municipality in a Nature Park to carry a label for a particular product. If so, it will be very confusing and possibly eliminating the aspect of regional identity, which is an important marketing tool for park areas.

From the research findings, the concept of green economy as proposed by UNEP (2011) is a holistic approach which could be used to guide policies for attaining sustainable development at any spatial level. Also, policies for promoting sustainable development are most often telling by themselves even though transforming these guidelines into concrete actions on the ground is a matter of controversy, as the case study areas present. The research reasons that many actors in parks in Luxembourg are aware of the need to balance out ecological, economic and social spheres of projects of sustainable development. Nevertheless, gaps in practical implementation suggest stronger individual desires over collective goals and the challenges involved in transforming a holistic concept, such as sustainable development into meaningful actions. The lack of will by certain producers to engage in organic processes and the absence of precise social attributes are clear examples of this notion. From the above, it is clear that these challenges are to an extent limiting envisaged strategies designed for parks in

Luxembourg. As such, it would be better not to evaluate the strength of parks in Luxembourg on the amount of practically realisable projects because this might lead to some negative conclusions. Rather, this should be looked upon in terms of how implemented strategies are attempting to unite different stakeholders, especially local actors on how to take control of the ecological, economic and social attribute of local resources.

As explained in the introductory chapter, this study was not out to explain the strategies that ought to be implemented to promote sustainable development in Nature Parks in Luxembourg. However, making use of information gathered from interviews with stakeholders and from literature on the main themes guiding the research, it is possible to highlight certain proposals that might be useful for improving parks' strategies in Luxembourg.

7.3. Proposals for Improving Strategies in Nature Parks

Related to economic development, a possible proposal is to design more practical strategies that would improve sustainable agriculture, mainly organic production. Sustainable agriculture is a philosophy based on human goals and on understanding the long term impacts of our activities on the environment and other species (Robinson, 2008). The use of this approach guides the application of prior experience and latest scientific advances to create integrated, resource conserving and equitable farming systems. These systems then go further to reduce environmental degradation, maintain agricultural productivity, promote economic viability in short and long term and maintain stable rural communities and quality of life (Francis and Younghusband, 1990, in Robinson, 2008). As understood in the analysis chapter, Luxembourg is the third European country with the highest per capita income spent on organic products. However, there are few farmers engaged in organic production and most organic products are imported. The main reasons why farmers do not want to practise organic

farming include fear of ending up with low yields, presumably lower financial benefits and possible termination of relationship with consumers due to higher prices. These worries have been discussed in Smit et al. (2009) as barriers limiting conversion to organic agriculture. However, Forrester and Hodder (2014) maintain that in order to develop a green economy, a transformation from conventional farming needs to be made. This is very important because processes to encourage organic production will not only improve soil nutrient retention and protect biodiversity loss (Pretty, 2008), but will also improve products quality and reduce negative externalities emanating from transportation. It will also help to reduce waste produced along the supply chain and certainly increase financial returns to local producers in park areas (Forrester and Hodder 2014). Recent efforts by IBLA (Institute for Biological Agriculture in Luxembourg) to convert conventional farmers into biological producers need to be applauded in this case. It is an example of determination by certain stakeholders in promoting sustainable agriculture in parks in Luxembourg.

An important proposal for improving economic performance could also be to enlarge the size of the Nature Parks in order to increase chances of attracting a critical mass for economic investment. The idea to increase the size of parks does not reflect a physical extension beyond present boundaries. Rather, it represent merging the two official parks, to open new corridors for producers and consumers, including knowledge sharing and power over decisions on regional competitive advantage. There is therefore, a need to rethink the objectives and planning processes of these parks for the purpose of framing a greater territory to simulate other European countries not only in terms of size, but also chances for commercial activities, demand and supply of local products, as well as easily resolving other administrative and governance challenges. Merging the parks would mean introducing quality label in the Our Nature Park and also spreading the desire for quality and organic products in a wider horizon. As such;

“To ensure proper regional development and to give more force to the region, it is important to fuse the two parks to have a variety of local products, a wider knowledge on nature protection and a larger population to be involved in creating a sense of social cohesion” (proposed a park administrator).

Also, as explained in previous chapters, Nature Parks through various strategies are contributing to regional development (soft activities) without any visible signs for directing regional projects in the sense of Hammer (2007a). Directing regional development is to an extent being misinterpreted in the case of Luxembourg, understood as a process for relegating the political powers of local administrators over matters of regional development. Directing regional development in the sense of Nature Parks should be a matter of increasing the rights of park administration to funding and on certain aspects related to decision making. For example, why is it that the Upper Sûre Nature Park is making significant steps in protecting water sources, but finding it difficult to control sustainable processes of local production? It might be argued that water is a national priority and needs greater attention. In this case, there is less attention to place specifics irrespective of local potentials. In order to help parks build a more sustainable region, a stronger political power to regulate local activities should be given to those managing these areas. This will for example, help to improve restriction on certain negative production practices, as local cooperatives will not have the sole authority over production processes. Such a regulatory framework can reduce unsustainable behaviour, by creating minimum standards or entirely prohibiting certain activities (UNEP, 2011).

“Nature Park areas have voluntarily chosen their status as “Nature Parks. Therefore, there should be enabling mechanisms to honour this

process, giving that it is an attempt to bring new forms of development into rural areas” (advised a local administrator).

Furthermore, local participation has been a major problem affecting the management of parks in Luxembourg. The UNEP (2011) has insisted that in order to promote a green economy, there is need for establishing appropriate governance mechanisms. For this reason, it would be important to increase efforts towards motivating the local population to be pioneers of almost all initiatives organised in parks. This will go a long way to help local people identify themselves with park activities and increase local responsibilities on issues of regional governance and development. Stakeholder dialogue should be considered a priority, while awareness building or knowledge sharing on the value of local potentials should be a recurrent theme in the project cycle management of park areas.

Likewise, it was realised that some local municipalities in park areas are finding it less favourable to have the label of a Nature Park referring to a particular municipality. These municipalities would rather prefer a generic sticker for everyone's favour. It might be very difficult to change things at this stage after more than two decades of existence. Reasonably, it is necessary to make local stakeholders understand that Nature Park is a global effort with no single partner trying to gain all alone. That is, Nature parks are masks of a region with all municipalities working for a win-win situation. It is better in this case for stakeholders to think of individual achievements from Nature Parks, without considering what other municipalities are gaining.

In this study, the aspect of local indicators to monitor and evaluate the objectives of Nature Parks has been underscored as lacking. Strategies in Nature Parks should be monitored routinely in order to keep positive outcomes within anticipated levels. Through this approach,

less performing strategies could also be redesigned to improve results and address certain challenges. As such, observing parks' activities should be a systematic ongoing and result-based process. Bell and Morse (2003) uphold that indicators are perhaps the most commonly applied tool to help gauge progress made towards attaining sustainable development. Consequently, monitoring and measuring sustainable development in the form of indicators has become an important part of most development projects. Indicators to improve the governance approaches of natural resource areas are also important for monitoring the participation of interested actors in Nature Park development. This is a vital platform in laying down responsibilities, especially on the local population to manage local potentials. Looking at these qualities, it is necessary that indicators become a relevant process in the cycle of park management in Luxembourg because this will help to increase accountability and build trust on regional projects. From the recommendations explained above, the implication of the study findings to the concepts of protected area and sustainable regional development is presented in the succeeding section.

7.4. Implication of the Study

7.4.1. Policy Implications

This research has highlighted various practical approaches used for developing Nature Park areas. The promotion of these strategies together with the actors involved have revealed great strength on the influence of attractive regional policies and at the same time, exposing certain gaps in implementation.

A major implication of this study revolves around the notion of paradigm shift in protected area, which explains that conservation is not the only objective of protected area development (Mose and Weixlbaumer, 2007). Following their conception, this study has shown that there are different streams of innovative projects which are contributing in diversifying the

economy of park areas, while simultaneously protecting local ecosystems and to an extent, improving the social condition of the local population. This is the aspect of integrated development as emphasised by Hammer (2007a) and it has gone a long way to describe protected areas of this kind as “real living landscapes”. Some small cooperatives producing quality goods have been branded with names of the two official regional parks and this has certainly led to the interpretation of these areas as places for sustainable development. However, contrary to the views of these authors that significant advances have been achieved in the domain of awareness about the meaning of protected areas, in practice, this is barely the case for parks in Luxembourg. This has been specified in the study results, which explains insufficient knowledge about the concept of Nature Parks as a barrier towards promoting sustainable development in park areas. As such, it is necessary to improve stakeholders’ knowledge about the notion of Nature Parks in Luxembourg.

Even though a new tradition is beginning to emerge in the form of quality production, the research findings have made it known that transparency towards sustainable production in parks in Luxembourg is still a matter of controversy. This could be seen from hidden trade-offs where goods produced from elsewhere are sold under the banner of Nature Parks. Added to this, a sustainable criterion to guide local production is being contested between authorities and local producers, let alone the relatively small number of organic producers. The Our Nature Park, for example has no quality principles to guide local production, leaving individual producers to decide. Looking at the situation, there is a need to readdress the question of quality production in Nature Parks in Luxembourg, in order for these areas to make clearer, the differences between park areas and other non-park regions.

The process of transformation to a greener economy, as highlighted in this research, ought to have been constructed on the aspect of organic production, as a force for change in Nature

Parks. This does not imply that other aspects of regional development are less important. It, however, suggests that there is a need to empower certain activities in sensitive regions like Nature Parks. It is desirable to increase the value of organic production, to better delink such processes from conventional practices. This will not only strengthen quality production, responsibility and accountability but also essential to perfectly realise close relationships between humanity and nature. This is the main platform upon which Nature Parks were designed. As such, policies in Nature Parks should differentiate the benefits of purely sustainable production methods from those of business as usual. A critical challenge to perfectly implement this policy is that the minds of most producers in park areas are set on green growth strategies, assuming that more is better in the quantitative point of view (Daly, 1999 and Jackson, 2009).

Additionally, a revelation from the research results has made us understand that development planners for Nature Parks in Luxembourg did not carefully consider important pathways on how to attain desired social goals. From this, it is clear that there was a little consideration on how predestined activities will affect the lives of the local population. Also, inability to setup indicators to monitor concerns, such as the number of jobs created from park projects, is an indication that interest was, and is still focused on the survival of the parks and not the targeted object (local population). The emergence of certain aftermaths, such as low public involvement in parks' activities has brought forth evidence that there were problems in defining concrete social policies at the very beginning of the planning phase of Nature Parks' development. This gap in social development in Nature Parks in Luxembourg is a weakness in respect to the views of Newton and Cantarello (2014). They argue that in the context of green economy, a key issue is an extent to which people benefit from protected areas. Franks et al. (2014) acknowledged that even though assessing the positive and negative social impacts of protected areas is no easy task, it can, however, be done with relatively simple and

low-cost methodologies. From this, a question that would come to mind is why park authorities are not carrying out social assessment of regional projects. Social assessment through the use of indicators is an important tool for evaluating social development and for assessing the impact of protected area policies (Atkinson et al. 2002). Through this, protected areas should be able to improve or at minimum do no harm to the livelihood of the local population. This is also very important to systematically test whether protected areas are making a positive or negative contribution to the livelihoods of people living immediately adjacent to the protected areas, or further away from it (UNEP, 2007). It should be noted that a main focus of the concepts of green economy and more generally sustainable development lies of aspect of improving social well-being for present and future generations. As such, it is important to redefine social objectives for parks in Luxembourg, in order to eliminate bias in policy implementation.

The research also revealed that the development of Nature Parks in Luxembourg rests on an effective governance framework, linking rural municipalities to public and other international institutions. This conforms to Najam and Selin (2011), about promoting a process where stakeholder participation is frequently being considered as an important instrument. This is also related to UNEP's (2011) enabling conditions for green governance, in which local participation is also a major theme. Through this, it is expected that local communities will have the opportunity to communicate concerns and offer rapid support for seeking and implementing lasting solutions in park areas.

Moreover, in as much as Nature Parks is a platform to engage stakeholders from different administrative levels to co-produce goals and share responsibilities on matters of regional development, there is a will towards promoting collaborative governance (Althea and Rehema, 2012) in park areas. Despite this struggle, the research has shown that differences in

perception among actors about the outcome of Nature Parks are a reflection of certain governance challenges in combining conservation and development. While at the local level expectations are on promoting socio-economic benefits, the notion of environmental protection is most favoured at the national level. In order to eliminate this tension, a new form of communication would be required to galvanise interest and improve mindsets about the advantages of activities in Nature Park. Policies for this objective would require strategies along the logic of Agenda 21. That is, creating partnerships that will overcome confrontations and which will promote genuine cooperation among actors in parks on issues related to regional sustainability. In so doing, Nature Parks would be responding to the idea of innovation in protected area governance (Borrini-Feyerabend et al. 2013) in which stakeholders are continuously being brought together into the processes of decision-making.

7.4.2. Implications for Research

The results from this study have presented certain practical and theoretical perspectives on the development of Nature Parks in Luxembourg. As such, the study has disclosed Nature Parks as fair instruments, attempting to integrate ecological conservation, economic prosperity and social wellbeing in naturally rich local areas. Through this, an important governance mechanism mainly in the form of intermunicipal cooperation has been created. Due to the integrated character of parks' project, it was quite challenging to analyse policies for sustainable development in these areas. This was an important test because in order to gain understanding on the sustainability strategies meant for these areas, a critical analysis on a single approach or policy would not have been enough to uncover best practices. This general analytical framework has helped in bringing out certain drawbacks related to the aspect of social development and the institutions and actors' network relevant for promoting sustainable development in Nature Parks in Luxembourg. From this, it is certain that the

research took a non-linear stand, by integrating human and environmental features as indicated in debates in environmental economic geography, to explain sustainable approaches in parks in Luxembourg.

The notion of green economy has been applied in this study as an integrated concept to analyse strategies for promoting sustainable regional development in Nature Parks in Luxembourg. This was an attempt to relate practical key findings of the research with contemporary models of protected area management. Through this, it has been able to demonstrate that strategies for Nature Parks in Luxembourg do not only resonate on environmental conservation, but also tries to integrate economic and governance strands of sustainability, even though there are certain fissures in the social side of the development spectrum. Generally, essential strategies about Nature Parks have not only address the question on how regional strategies would affect local wellbeing; but have also demanded responses on how the local population should organise themselves in managing their own resources. This is an important conceptual guide to integrating the values held by societies about existing natural potentials and also to provide means through which the local population would benefit from existing resources.

Also, my aim to add a governance strand of sustainable development in this study was due to academic curiosity, to identify local problems about decision-making and management in park areas, and to understand how stakeholders seek appropriate strategies starting from the lowest level of the society. Interestingly, this was successful because the study has shown that, the local population is not very interested in planning affairs related to Nature Parks. It has also been understood that Nature Park administration needs appropriate powers to make concrete decisions, especially when it comes to sustainable production. Presently, increasing the political powers of the administration in Nature Parks is a distant dream even though this

is required to consider parks as an instrument of regional development (Hammer, 2007a). As the situation presents, parks are mainly encouraging the soft tasks of sustainable regional development, as seen from the strategies explained beforehand. Generally, the picture presented above is a reflection of challenges about the appropriate governance framework for the development of Nature parks. The studied cases have shown that a holistic approach is not necessarily the solution. Rather, approaches should match the specific characteristics of each Nature Park area, guided mainly by the expectations of the various stakeholders. The next section explains suggestions further research on Nature Parks as a form of protected area development.

7.5. Suggestions for Future Studies

This study has explained certain integrated strategies in the development of Nature Park areas. However, contradictions revealed in the study are indications of the challenges in translating policies of sustainable development into realisable projects. A glaring example is a difficulty to enhance concrete policies and practices of social development in park areas in Luxembourg. The central argument is that even though strategies applied in Nature Parks have to an extent encourage a local green economy through environmental, economic and participatory processes, the aspect of social well-being is still a major problem. Improving social wellbeing is a key objective, as this is essential to engage the local population and eliminating the perception that Nature Park development is related to conservation only. Mainstream policies for Nature Parks are limited in explaining how protection can eventually develop local well-being. Therefore, there is a need to search for appropriate policies that will help in reducing this barrier and which will value social well-being as an integral component for Nature Parks' development. The research, therefore, maintains that there is a chance for parks to improve sustainable social performances, if strategies are more likely to inspire social

features with realisable consequences, such as job creation. This entails that future studies about Nature Parks in Luxembourg would need to see how individual strategies for ecological and economic prosperity are likely to redefine features of social development. An important objective of such a research should rest on the social outcomes of park policies. This will be efficient to see how strategies address problems and expectations of various local groups.

As highlighted in this research, existing governance strategies meant for Nature Park areas are not satisfactory enough in engaging all stakeholders for a common goal. While the research has acknowledged that governance is an essential pillar for greening a region's economy, little was told on how to effectively involve the local population in the overall governance procedure. A focus on the contribution of local participation in attaining sustainable local development would help to compensate this study and further reveal the strengths and limitations of participatory processes in Nature Park governance. This will prove favourable in explaining the different components necessary for an effective governance partnership among actors, to enhance local development in parks in Luxembourg.

It has been understood from findings that strategies for Nature Park areas are practically committed to attaining sustainable development. However, it remains to be known if, without Nature Parks, there would be any sort of sustainable strategies in rural areas were parks are found. That is, are the impacts of Nature Parks related to issues of causality, simply because these areas have been designated as protected areas? To seek responses to this question, a complementary study could focus on strategies for sustainable local development in non-park areas, all within the rural milieu in Luxembourg. Take the example of agriculture, which is a principal activity in park areas and is also practiced elsewhere out of the two main parks in Luxembourg. Also, succeeding research questions can include other aspects such as innovative technology in the form of solar, wind and biogas installations, as well as green

buildings in rural areas. These are features which are fast becoming principal implements for sustainable transformation in rural areas in Luxembourg. Such studies will further elucidate the importance of Nature Parks as engines for sustainable regional development. It might also help to uncover certain strategies not revealed in this study.

Furthermore, the research has revealed that there are no monitoring systems for improving Nature Parks' strategies in Luxembourg. The absence of monitoring mechanism is a weakness in that, it is difficult to tell if intended goals are being met or not. Newton and Cantarello (2014) have acknowledged that checking results of sustainable projects is typically achieved through the development of appropriate indicators. A sustainable development indicator (SDI) can be understood as a qualitative/quantitative tool that analyse changes, while measuring and communicating progress towards the use and management of economic, social, institutional and ecological resources (Olsson et al. 2004). It is meant to show how well a system is working towards defined goals. In relation, chapter 40 of local Agenda 21 (bridging the data gap) stresses the importance of indicators as a means to ensure planning for sustainable development. According to the World Tourism Organization (2004), indicators can make a difference in three main ways; through the information they generate, the partnerships they create and the actions they produce. That is, indicators start to make a difference even before they are fully developed, as new concepts are explored and lessons learned. During the indicator development process, information is generated through discussion, consultation and appropriate use of publicity, web sites, regular progress reports, and press releases. In participating in indicator development, stakeholders have the opportunity to consider what is important to them and to re-evaluate the impact of local projects on their lives and their community. Sustainable indicators for Nature Parks in Luxembourg would be vital to establish a link between nested strategies and social well-being. It would also be necessary to tell about the economic potential of such areas, going further to attract investments needed to

guarantee continuity in the sector of local production. For the reason that the methodology of this study was unable to cover aspects on the creation of indicators for park areas, the role of future research would be to investigate this prominent factor for planning sustainable development in parks in Luxembourg.

7.6. Concluding Note: Nature Parks in the Era of Green Economy

In this study, the leading argument has been that the strength of Nature Parks in mitigating resource depletion, to improve socioeconomic prosperity and participatory regional processes, is explicitly linked to the development strategies planned for such areas.

In ecological regions like Nature Parks, awareness about implemented strategies is very important because these are areas with pertinent ecosystem services necessary for livelihood. As such, it has been explained that parks are to a fair extent integrating features of conservation and development, in an attempt to address relevant questions related to sustainable regional development. It is for this reason that Scott (2002) explains parks in relation to tools that help fulfil the objectives of biodiversity conservation in the context of economic development, social quality, as well as local governance.

In an era of global economic and environmental crisis, attention has been on best practices for practically attaining sustainable development. Conceptions on Nature Parks' development make use of this consideration by placing importance on proper management strategies for ecological conservation, which will foster local economic and social prosperity. From this, transitioning to a green(er) economy is visible in park areas, especially as sustainable production for example; is fast becoming a standard for awareness building about appropriate strategies and their effects on environmentally sensitive areas. This is perhaps more telling because the approach of local production in parks areas draws attention on the importance of

ecosystem services; a platform for human survival through material and energy flows. Such views are very important in tackling questions about “use and use-up” (Field, 2008) of environmental services, which are fundamental for pursuing goals related to the green economy or sustainable development. Looking at the research findings, Nature Parks in Luxembourg are doing well in integrating key issues such as knowledge and education for conservation, quality production and consumption, as well as participatory processes for resource preservation. Leaving out these strategies for the proper management of ecosystem services will surely limit the efficiency and quality of these areas vis-à-vis sustainable regional development.

It is understood from this study that Nature Parks in Luxembourg were not created simply because of natural resource availability, but also for the fact that actors had anticipated possibilities in bringing forth long cycles of quality development. Local production, for example, is an aspect of qualitative development, as proven by approaches for food and non-food production. I am convinced this domain is moving along the path predicted by stakeholders in park areas, even though unwillingness to engage in organic production is still a major challenge. The fact that Nature Parks in Luxembourg are located in particular rural areas and their strategies are bringing forth positive externalities in local production processes, it is enough evidence that these areas have specific spatial significance to help delink rural areas from historical drags related to traditional methods of production. This is essential in determining the role played by nature in the development of local economies and to change mind-sets about Nature Parks, as a system not embedded in the economy of rural areas, but the other way round (Daly and Farley, 2010).

To be a bit more critical, originally, almost all approaches for local projects in Nature Parks in Luxembourg were hypothetically linked to the three pillars of sustainable development.

Nevertheless, taking a deeper look at existing situations, it is clear that more attention is being given to economic development. While the ecological equilibrium declines a bit in this process, the social dimension has almost disappeared. That is;

“A major goal of Nature Parks is the protection of nature. Unfortunately, at the moment, there is still an extreme difference between this objective and reality. Parks are focusing more on the economic arm of tourism” (a local individual).

Also:

“In the Our Nature Park, the economic aspect has been given far more consideration with little reflection on environmental protection. In this area, it is possible to find zones of economic activities between Ettelbruck and Wiltz after every 5km. The question that remains is whether these activities are related to the Nature Park or they are just simply other forms of regional economic development found in park areas. This is quite important because, in our globalised world, each region has to choose its specific profile towards development. Therefore, it is necessary that the two parks in Luxembourg have a profile of natural regions with enormous potentials. This should not be confused with regional economic development where other aspects like the environment and the local population are under looked” (Cautioned a local administrator).

I think, for example, that the goal of the Upper Sûre Nature Park is to protect the catchment area of this region. But if we consider the evolution of nitrate in this water source, standing somewhere around 20mg today, it tells that there is a problem with increasing quantities of chemical influents. This notion reflects a result presented in 2010, by the European

Environmental Agency. That is, ground water provides 57% of the 47 million m³ of drinking water used annually in Luxembourg and that the nitrogen content of this water source has since in the 1990s decreased considerably from 200KgN/hectare to 111KgN/hectare. However, recent studies show that about 40% of surface area that drains into water surfaces discharges water containing 25-50mg/litter of nitrate. The national data shows that half of the nitrate input comes from chemical fertiliser and a third from livestock affluent. In more than 90% of the monitored groundwater sampling sites, pesticides are detected, sometimes at concentrations that exceed 100Ng/litter. As such, for the fact that the two parks contain a significant percentage of drinking water sources for Luxembourg, it is no doubt that a fair share of these degrading substances would come from these areas. This indicates a lack of concrete strategies for ecological protection in park areas. This example also goes further to intensify the debate about risks involved in combining conservation and other forms of development.

The situation is becoming far more serious in the Our Nature Park where there are no generally agreed guideline principles for local production and where local individuals decide on how to go along with daily production activities. When we think of a Nature Park in the French and Austrian contexts where regional development is constructed on local potentials and with strict rules to respect the environment and improve social standards, one might be forced to conclude that actors in parks in Luxembourg are to an extent trivialising natural capacities.

Once more, the objective of this study was not to put forward green strategies needed for the development of Nature Parks but to examine these policies and the effects on the adjacent population and land surfaces. It is for the stakeholders to design suitable approaches that will meet up needs and desires. However, the investigation has been able to explain how Nature

Parks are multifunctional instruments of Luxembourg's National Spatial Planning Programme. As such, it is clear that Nature Parks are essential tools for changing mind-sets, attitudes and values towards regional potentials and sustainable development. That is, notwithstanding the numerous challenges, Nature Parks are very important for local municipalities that are engaged in integrated projects, in the framework of sustainable regional development. The study, therefore, settles that parks should not be considered as a panacea to local problems and that intended strategies will always lead to positive goals, even if this can practically be possible. Although global agreements are giving protected areas a starring role in many aspects other than biodiversity conservation, multiplying management objectives virtually to the infinite, there is, however, considerable debate on the weight of additional social and economic objectives in protected area management, following the desirable yet vague concept of sustainable development (WCED, 1987, in Rodríguez-Rodríguez, 2012). Whereas attaining all the above targets would be ideal for any protected area, the challenge for Nature Parks in Luxembourg to do so is overwhelming. This is because these goals are so wide and ambitious that, even in the cases where they are not directly opposed (UNESCO, 2002), it looks doubtful that any piece of land in the world could comply harmoniously with all of them. From this, I would rather suggest that parks in Luxembourg should not be judged from individual projects, but the philosophy behind applied strategies; promoting sustainable integrated regional development. That is, the attempt to improve the relationship between man and the environment.

The main objective behind the creation of parks in Luxembourg is to harmoniously valorise natural resource services, provide a common platform for improving and marketing of regional products, as well as for sustaining local well-being. For the fact that the last objective has not been fully implemented does not mean that parks have completely failed in their goal to foster sustainable regional development. Rather, Nature Parks have grown of age and for

this reason, projects meant for these areas will grow from strength to strength. With increasing awareness about the twenty-first century paradigm shift in protected area development, stakeholders will surely not want to limit the improvement of Nature Parks at current levels. As such, determination to properly develop and implement strategies for ecological conservation, economic prosperity and social well-being, including sound participatory approaches would be a dominant factor to guide the future of Nature Parks in the pursuit of sustainable regional development.

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APPENDIXES

APPENDIX 1: Interview Guide for Key Actors in Nature Parks

Objective: To identify diverse viewpoints of key actors in the local economy and producers of regional goods on:

- The purpose of the setting up of a Nature Park in the area.
- Distribution of benefits, costs and risks to the regional/local produce related economic activities and local key actors.
- Possibilities and possible mechanisms/processes/indicators to learn over time about the impact of the Nature Park on the regional economy and key local actors, and on environmental assets associated with the Nature Park.

Questions

1. What do you think of the use of Nature Park areas as a zone of economic development in Local areas in Luxembourg? What advantages and/or disadvantages do you see?
2. Do you see any the added value of living in a Nature Park area for conducting your business?
3. Do you think this Nature Park is effectively improving conditions for regional production?
4. What is the direct or indirect impact of this park with regards to what you produce locally?
5. In your opinion, what are the benefits, costs and risks of the activities of this Nature Park on local producers or benefits, costs and risks felt by other communities?

6. In your opinion, which production sector is most impacted by operating in or near this Nature Park?
7. To what extent is your activity sector contributing towards the production of green merchandise in this Nature Park area? (Natural/ecological products)
8. What is your main objective when engaging in green production? Or why have you chosen not to engage in 'green production' or using a 'nature' related label for your produce?
9. Do you get any subsidies from the higher authorities for engaging in an innovative method of sustainable production activities?
10. What are some of the difficulties that you encounter while trying to promote sustainable regional production?
11. Which policy recommendations can you suggest that will improve regional production - green and other?
12. What indicators would you suggest to learn over time about benefits, costs or risks from operating within a Nature Park you feel are important to your trade?
13. Other remarks that you might want to make?

APPENDIX 2: General Interview Guide

Objective: to analyse the opinion of key actors linked to development and management of Nature Parks on the contribution of Nature Park areas in promoting green economic development in rural regions.

General Questions

- Do you think Nature Parks are important instruments for improving sustainable development strategies in local areas in Luxembourg? Why?
- What are the main characteristics of this area with respect to economic, social and environmental development?
- How will you describe Nature Park areas as planning instrument for the local economy?
- What are the factors that support the use of parks as a development mechanism for local areas in Luxembourg?
- Who are the main stakeholders involved in planning the development of Nature Park areas and what particular role does your institution play?
- What are some of the social-economic and environmental effects ((in) direct) of park development in local areas?
- Which are some of the innovative economic, social and environmental activities linked with park development?
- Which community is mostly affected by the consequences of park development?
- Which concrete example(s) of integrated development project(s) do you have that will improve understanding on the use of Nature Parks as tools for greening the local economy?
- What are the main problems encountered in using parks as instrument to promote green development in local areas?
- Which policy recommendation would you propose?

APPENDIX 3: Questionnaire

Institution and Department.....

Duties.....

1. Which of the following reasons are linked to the use of Nature Parks as instruments for Local development? (Select more than one)

- ☐ *To increase the income of all municipalities involved*
- ☐ *To protect the forest*
- ☐ *To increase local and regional competitiveness*
- ☐ *To change the patterns and processes of production and consumption*
- ☐ *To protect the environment and reduce the effects of climate change*
- ☐ *To promote social well-being and reduce outmigration*
- ☐ *To improve on waste management and energy production*
- ☐ *To promote new skills in natural resource management*
- ☐ *Others.....*
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2. Do you think the establishment of Nature Parks has an influence in any of the following issues, and if it is positive or negative?

Issues	+	-	No Answer	Don't Know
Unemployment				
Out migration				
Income per capita				
Ecopreneurs (Ecologically Small and Medium Size Enterprises)				
Water Management				
Pollution				
Agricultural policies				
Aging population				
Forest Management				
Jobs				
Secondary Industries				
Green Energy production				
Sustainable Transport				
climate change				
Waste Management				
Sustainable construction				
Production of local goods and services				
Training on Green skills				
Ecotourism				
Environmental Education				

Other issues:

.....

3. Which amongst the sectors below is most preferred for improving sustainable development in Park areas?

Economic ☐ Social ☐ Environmental ☐

4. In your opinion, what social consequence does Nature Parks have in the development of local areas with respect to: (1 =lowest impact and 5= highest impact)

	1	2	3	4	5
<i>Employment</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Health</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Education</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Outmigration</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. In your opinion, what economic consequence does Nature Parks have in the development of local areas with respect to: (1 =lowest impact and 5= highest impact)

	1	2	3	4	5
<i>Ecotourism</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>SMs businesses (Ecopreneuers)</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Agriculture</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Transport</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Marketing</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Local production and consumption</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. In your opinion, what environmental consequence does Nature Parks have in the development of local areas with respect to: (1 =lowest impact and 5= highest impact)

	1	2	3	4	5
<i>Natural resource management</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Waste management</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Renewable energy</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Sustainable Building</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Pollution</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Eco-technology</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Green skills development</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Which amongst the factors listed in question 4,5 and 6 above are most important for improving local prosperity in this Park area? (Indicate more than one).....

.....
.....

8. How would you describe the governance of Nature Parks as instruments for planning local development?

Participatory /Integrated ☐ Top-down ☐ Bottom-up ☐

9. Looking at the current economic crisis, do you think Nature Parks have the capacity as important instruments for promoting local prosperity, presently or in the future?

Presently ☐ In the future ☐ Don't know ☐

10. Comments / issues you would like to add.....

.....
.....
.....

Thank you very much

APPENDIX 4: List of Interview Partners

Ben Geib	Agricultural Engineer, Bio-Lëtzebuerg
Camille Gira	Secretary of State at the Ministry of Sustainable Development and Infrastructure (Was interviewed as the Mayor of the commune of Beckerich and member of the Green Party)
Charles Marx	President of Téi vum Séi Cooperative
Christine Lutgen	Director, Upper Sûre Nature Park Presently,
Francis Hengen	Contact Person, Mouvement Ecologique, Southern Region
Frank Elsen	Agricultural Engineer, Upper Sûre Nature Park
Georges Keipes	President, Blé vum Séi Cooperative
Jean Claude Sinner	Senior Government Adviser and Coordinator, Division of European Affairs, Division of Spatial Planning, Ministry of Sustainable Development and Infrastructure
Lucien Classe (Mr. and Mrs.)	Local citizens from the Upper Sûre Nature Park area.
Luc Jacobs	Agricultural Engineer, Our Nature Park
Marco Koeune	Biological Farmer, Vice President of Organic Farmers' Association, Luxembourg
Marlene Croat	Sales Assistant, Buttik vum Séi
Michel Heftrich	Proprietor of Kultour-Dëppen (local business)
Norbert Eilenbecker	President of the BEO Cooperative
Petra Kneesch	Project Manager, Our Nature Park
Philip Peters	Government Counselor, Division of Nature and Landscape, Ministry of Sustainable Development and Infrastructure
Romain Schroeder	Mayor of Winseler (A Municipality in Upper Sûre Nature Park)
Thierry Kozlik	Agricultural Engineer, Ministry of Agriculture, Viticulture and Rural Development
Tom Becker	Research Associate, University of Luxembourg. In charge of the Cellule nationale d'information pour la politique urbaine (CIPU), EUKN National Focal Point and URBACT National Dissemination Point (Also implicated in the planning of the Mullerthal Nature Park)

APPENDIX 5: Law Enacting the Creation of Nature Parks in Luxembourg

1

Déclaration du parc naturel de la Haute-Sûre

Nature: Règlement grand-ducal

Publication: Au Mémorial A n° 44 du 26.04.1999

Date de l'acte: 06.04.1999

ELI: <http://eli.legilux.public.lu/eli/etat/leg/rgd/1999/04/06/n7>

2

Déclaration du Parc Naturel de l'Our

Nature: Règlement grand-ducal

Publication: Au Mémorial A n° 92 du 27.06.2005

Date de l'acte: 09.06.2005

ELI: <http://eli.legilux.public.lu/eli/etat/leg/rgd/2005/06/09/n1>