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DOCTORAL THESIS - SUMMARY

**CONTRIBUTIONS REGARDING THE RESEARCH
OF THE SUSTAINABLE DEVELOPMENT IN AGRO-
TOURISM FROM A CIRCULAR ECONOMY
PERSPECTIVE**

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SUMMARY



The research background and motivation of this paper is related with the role of agro-tourism impact on environment. Agro-tourism activities impact on the development of rural area represent the reasons for it is strategic support at microeconomic and macroeconomic context.

In the process of developing agro-tourism, significant attention is necessary to the environment, representing the raw material of agro-tourism activity. So, the relation among agro-tourism and environment shows a particular significance. A sustainable development and protection of the environment being the required circumstances for its practice.

It is necessary realizing vital changes regarding the production and consumption of goods and services. In order to preserve our One Planet while taking into consideration economic and social aspects.

Research suggests that agro-tourism sector it is a growing sector. Therefore, the link from agro-tourism and sustainable development are claiming the identification of new models by making the development more sustainable. So, this thesis proposes the approach of the influence of circular economy on the sustainable development of agro-tourism.

To introduce the notion of circular economy in agro-tourism it necessary to establish and apply a sustainable development for agro-tourism structures activities. Adopting a new exemplary of management starts up with promoting new intentions related to production, consumption, ethics, etc.

Circular economy in agro-tourism can lead to a sustainable use of resources for the present and future generations and accomplish sustainable development in this domain.

The present research is a contribution, by questioning present issues and future potentialities, suggest ways in which agro-tourism can embrace a sustainable development with the influence of circular economy. Highlighting to focus agro-tourism structures concerning optimizing the environment by delivering major benefits for local communities and for the economy of Europe.

Among the most important problems that European Union (EU) has been struggle in the past decades has been the differing development of rural and urban regions. Farming and agriculture are considered as a valuable sector of human activity, but their input to the national GDP has constantly decreased. At the EU diverse strategies were designate to stimulate sustainable development of rural areas, to strengthen the self-sustainable economies through strong entrepreneurial rural business solutions.

With the decline of the farm revenues, tourism, as an adjoin activity, has increase rapidly in the rural regions. In this context, agro-tourism sector has newly attained more attention due to the demographic tendency across the Europe, but also worldwide. The most decisive due to the development related changes in the agriculture sector and the use of lands.

Agro-tourism has grown rapidly since 1970 by responding to new markets, new lifestyles and new product development opportunities. What represents the quality criteria for the typical tourist has changed in the past decade. One of the top criteria on every traveler's list is the positive environmental socio-cultural and impact. However, there exists an important paradox: a tourist destroys what he is searching for, while he discovers it.

Therefore, the research background and motivation of this paper is related with the role of agro-tourism impact on environment. The impact of agro-tourism activities on the development of rural regions represent the reasons for it is strategic support at microeconomic and macroeconomic context.

It is necessary realizing vital changes regarding the production and consumption of goods and services. In order to preserve our One Planet while taking into consideration economic and social aspects.

In the process of developing agro-tourism, special attention is required to the environment, which represents the raw material, the object and aim of tourism activity. So, the relation among agro-tourism and environment shows a particular significance. A sustainable development and protection of the environment being the necessary condition for its practice.

Research suggests that agro-tourism sector it is a growing sector. Therefore, the link from agro-tourism and sustainable development are claiming the identification of new models by

making the development more sustainable. So, this thesis proposes the approach of the influence of circular economy on the sustainable development of agro-tourism.

Circular economy in agro-tourism can lead to a sustainable use of resources for the present and future generations and accomplish sustainable development in this domain.

The question is now how to integrate these principles of the Circular Economy concept into a management system based on agro-tourism activities leading to a sustainable development from environmental view? To obtain an answer for this question, this research bridges the gap between Sustainable Development (SD) and Circular Economy (CE). Therefore, underlies the established of agro-tourism activities to unite economic, social and environmental benefits and provide a realistic approach.

The interest on agro-tourism sector is particularly because to its role regarding the development of rural communities in a sustainable way. This sector can constitute a fundamental part of environmentally friendly regarding agro-tourism structures activities. In a context of preserving the environment is a key point by answering to the present of the socio-cultural, economic and environmental changes, technological progress.

The present research is a contribution, by questioning present issues and future potentialities, suggest ways in which agro-tourism can embrace a sustainable development with the influence of circular economy. Highlighting to focus agro-tourism structures concerning optimizing the environment by delivering major benefits for local communities and for the economy of Europe.

The objectives of the doctoral thesis

The main/principal objectives of this thesis are:

- Analysis of the current state of the research in the field of sustainable development, circular economy and the connection of these concepts and the integration and optimization of the specific processes carried out in agro-tourism structures;
- Proposal of a conceptual model achieving sustainable development in agro-tourism structures concerning activities from an environmental view under circular economy perspective;
- Proposal of a research method focusing agro-tourism structures for environmental optimization;

- Realization of a guideline regarding good environmental management practice in agro-tourism. The guideline focusses the activities in an agro-tourism structure regarding waste, energy and water management. Elaborate a management system to guide agro-tourism activities and the participants to a sustainable development under the influence of circular economy;

For an efficient conduct of the research it was necessary to plan this activity, therefore to the principal objectives of this work were identified specific objectives.

The specific objectives are:

- Analysis of the current state of research in the field of sustainable development and circular economy in order to connect these concepts and to integrate and optimize the specific activities carried out in an agro-tourism structures;
- Defining the concepts and terminology used in conducting this research;
- Carrying out a comparative study in the waste, energy, water sector in E.U., Romania and Italy.

The expected outcomes of this thesis are to provide by:

- Increasing farmers and tourists awareness regarding the impact of agro-tourism activities from economic, social and environmental point of view. All those three parts being key opportunity for the sustainable development of agro-tourism structures, local communities and landscape-area;
- Encourage the use of a sustainable development by managing agro-tourism activities from a circular economy perspective by presenting the benefits of it;
- Developing an environmentally friendly approach for agro-tourism activities by rising the quality standing of the agro-tourism products and services. Considering the actions on the environment, agro-tourism can have a significant part in order to protect and preserve it;
- Setting up a framework of information to achieve a sustainable development in agro-tourism from circular economy perspective for the farmers and tourists;

Increasing at the local, regional and international level the development of good practices in agro-tourism activities from a circular economy perspective.

Recommendations aim to tackle the problems noted in this study and provide information to guide future investment policies in agro-tourism. Along with develop means to guide the agro-tourism entrepreneurship, provide effective governance systems to help partnerships and networking. All those but also to create ways to develop the social, economic and environmental performance of agro-tourism sector.

Agro-tourism structures are the most suitable to set up initiatives with the aim of improving the sustainability of the sector, involving also the tourists directly.

Research methodology

In this paper there was a structured approach of the research methodology starting from data collection and reaching to the validation of the research. In order to achieve the proposed objectives, a number of research methods, techniques and tools have been applied:

- the study and analysis of bibliography, which mainly involved identifying the definitions of the concepts and terms used, interpreted and concluded in a personal manner;
- mathematical modeling represents the attributes of the integrated model proposed through mathematical relationships. This modeling was chosen because it is an easy and inexpensive method (in the present case) and because it favors the symbolic manipulation of the proposed model;
- quantitative analysis of the data was done in accordance with the proposed objectives. the data being presented in the form of data summaries, tables, graphs and narrative text and analyzed starting from identification the object of study, to the collection of data until their registration and presentation;
- qualitative data analysis is in fact the strategy chosen to ensure that the data obtained and used during this research are up-to-date and accurate;
- methods of data representation and interpretation: tables, diagrams, graphs, etc. are methods used in this work because in comparison with the narrative description, those methods have a better understanding of the structure and relationships in and between processes presented and researched;
- specialized software for editing, image processing, modeling (Microsoft Word, Microsoft PowerPoint, Microsoft Excel).

The structure of the paper

The paper is structured on 8 main chapters, to which is added an introductory chapter, a chapter of conclusions and the bibliography, as follows:

1. INTRODUCTION

The chapter presents the general context of the doctoral thesis, describes the research theme. This chapter illustrates the principal and specific objectives of doctoral thesis, the research methods and tools used and summarizes the content of the thesis.

2. STATE OF THE ART

The chapter illustrates a list of definitions of terms and concepts used in this paper, the concepts of sustainable development and circular economy and the connection of these concepts and the integration and optimization of the specific processes carried out in agro-tourism.

By this chapter was achieved on objective of the paper regarding the analysis of the current state of research in the field of sustainable development (highlighting the environmental part) and circular economy in order to connect these concepts and to integrate and optimize specific processes in agro-tourism.

By proceeding to a detailed analysis, these concepts are not disparate, between them there are a number of links that have been highlighted by the research

The research theme of the PhD thesis was based on the concepts presented in Table 1 from below.

Table 1 The concepts underlying the research theme

Agro-tourism	Mix between two industries: agriculture and tourism, including various tourist activities: accommodation (room and breakfast, rural housing), catering (meals), pleasure activities (educational farms, sports, farm visiting, etc.). Activities are linked with the local gastronomy, cultural and natural heritage, overall to the environment.	In agro-tourism, the development thru circular economy linked to the UN's Sustainable Development Goal number twelve is view as a model that's carrying the environmental direction.
Sustainable development	This notion presented in this paper represents the ability of an organization to provide long-term resources.	
Sustainable Development Gold number twelve	Key challenges regarding sustainable consumption and production patterns. This objective aim is to reduce resource consumption and pollution and analyses the use of goods throughout their life cycle.	
Circular economy	The concept use in this paper is related to the ideal to consume as many resources as they can be regenerated.	

3. COMPARATIVE CRITICAL ASPECTS IN AGRO-TOURISM IN ROMANIA AND ITALY

Within the chapter 3 is presented the role of the selection of case studies Trentino and Sibiu County, with an overview on agro-tourism sector regarding the case studies as well as a general view on agro-tourism concerning waste, energy and water consumption in the two case studies selected. Is presented the legislation as well at European, National and Regional level in agro-tourism, waste, water and energy sector.

Regarding data collection and processing for the case studies in this research two organizations were implicated in the case studies: Ufficio di Economia e Politica Agraria Provincia Autonoma di Trento (Italy) and the Sibiu County Tourism Association (Sibiu). Both the local administrations supported the present research by making information available on the structures of the two territories and on the approach used to disseminate sustainable criteria of management.

The information that has been accessed were available in form of raw databases and printed dissemination documents and participation to conference in the field of tourism taking direct contact with the players from agro-tourism sector.

The possibility of having information, also from the point of view of the environmental sustainability of the structures (See Annexes), is useful for different purposes, both to identify the impacts that this growing sector entails for the territory but also to gather information on the

environmental side that is always greater importance in the choice of a destination for tourism or recreational purposes.

With regard to collection of information from agro-tourism structures the necessary for the purposes of the objectives set out in this work is the knowledge of the agro-tourism structures located in Trentino and Sibiu County regarding the sectors of analysis which are energy, water and waste (See Annexes). The questionnaire is oriented to outline a framework in the different areas of analysis, in particular:

- Characterization of waste sector with reference to traditional methods implemented after the production of different waste fractions;
- Characterization of water sector in relation to the adoption of technologies for the containment of waste and the waste water treatment systems adopted;
- Characterization of energy sector on the use of renewable sources for electric or thermal purposes, types of fuels used for various purposes, type of insulation thermal systems, activities and practices promoted and carried out at the facility and future intention to adopt energy efficiency measures.

The empirical data is collected and the questionnaire was self-administered. Selection of participants in this study was done on a voluntary basis. Sending questionnaires to agro-tourism was made by e-mail and was followed by a letter from the Trento Provincial Agriculture Service in Trentino and Sibiu County Tourism Association to promote data collection in the agro-tourism sector and stimulate the response to the questionnaires.

In terms of research methods, was chose the questionnaire based on investigation method. The questionnaire was sent to the subjects with the propose to conduct the research to the objectives pursued. The methodological tool used to gather information was the opinion questionnaire. It has the advantage of providing complex information and the objective possibility of correlating the indicators, making it possible to achieve credible and easy-to-interpret results.

For the study, an anonymous questionnaire was applied. The anonymity of the questionnaire was ensured, but they were requested some data necessary for statistical processing relating to: agro-tourism structure's name, address, telephone/fax, website, e-mail, position respondent in the agro-tourism enterprise.

The questionnaires were sent to agro-tourism farms, corresponding to Trentino and Sibiu County. The reason for this is because it was not realizable to send to the remaining agro-tourism structures as they were not found e-mail addresses being absent on the database held by the Ufficio di Economia e Politica Agraria Provincia Autonoma di Trento (Trentino) and the Sibiu County Tourism Association (Sibiu) and have not been identified even through online searches.

The structures not involved in this data collection do not have a website dedicated to them and are often not present on pages dedicated to the advertising of hospitality facilities managed for example by Trentino Marketing, Agriturismo Trentino, Sibiu County Tourism Association (pensuni agroturistiche) or association or on portals dedicated to bookings and exchange of views on the structures.

Replies to the questionnaires were obtained of the requests sent in Trentino and in Sibiu County. Although some farms have not provided an answer declaring that they are impossible due to time issues or considering too many questions to be answered, the information collected has allowed to outline the environmental and energy situation of a large part of the Trentino farm structures involved in investigation.

In this chapter are presented critical aspects of the agro-tourism sector regarding waste, energy and water consumption in an agro-tourism structure from the two case studies.

4. CONCEPTUAL MODEL FOR THE SUSTAINABLE DEVELOPMENT OF AGRO-TOURISM STRUCTURES ACTIVITIES FROM AN ENVIROMENTAL VIEW UNDER CIRCULAR ECONOMY PERSPECTIVE

In Chapter 4 are illustrated agro-tourism in a context of sustainable development concerning the environmental view. In this chapter are the conceptual model of sustainable development in agro-tourism from the perspective of circular economy. It is explained the realization of a model concerning the planning and design process for sustainable development in agro-tourism from circular economy perspective: environmental pillar.

With a view to the unitary approach of the model regarding the achievement of sustainable development and the integration of the circular economy treated in the paper, it has been identified

and set out the main elements that determine the meaning of the environmental aspect in agro-tourism structures and the starting point for its modeling are:

- The concept of agro-tourism, sustainable development and circular economy;
- Sustainable Development Goal number twelve because of the connection with circular economy approach concerning approaching a model carrying about the environmental direction.
- The circular model can help to make agro-tourism activities more sustainable.

To elaborate the conceptual model for achieving sustainability in agro-tourism from the perspective of the circular economy, the approaches of Sustainable Development Goal number twelve have been analyzed and transformed into measures to achieve sustainable development in agro-tourism.

Starting from these it has been settled objectives in order to achieve sustainable development (environmental pillar) in the agro-tourism structure under the circular economy directives. The circular model can help to make agro-tourism more sustainable.

In this chapter is presented also a method focusing agro-tourism structures for environmental optimization. Deriving from the results of this investigation, research and information collecting, the study offers some answers concerning the impact of the activities from an agro-tourism structure. The methodology used in this paper it is inspired from a model named DMAIC. This model is used in organizations in the six-sigma projects. The main aspect is to develop and propose a healthy agro-tourism development strategy for both case studies.

5. SUSTAINABLE AGRO-TOURISM STRUCTURES DEVELOPMENTS FROM A CIRCULAR ECONOMY VIEW

In this chapter is presented a guideline regarding good environmental management practice in agro-tourism. The guideline focusses the activities in an agro-tourism structure regarding waste management, energy use optimization and consumption and water management.

Adding also a knowledge of the characterization of the structures in terms of actions taken to reduce the impact of agro-tourism activities on environment. This by resulting ways thru new models of production and consumption, prevention and protection of environment. And also

concerning management resources in a manner that has the ability to provide the resources of an agro-tourism structures on long-term. The circular economy comes with models to consume so many resources can be generated.

After being highlighted by data collection, technology solutions and strategies have been developed capable to combine the technical feasibility of the intervention with the expected benefits after adopting different solutions in order to improve agro-tourism structures in the direction of environmentally friendly by respecting the environment.

For each sector of analysis, the main issues identified by the current situation are analyzed, proposing improvement solutions, with the aim of limiting the impacts that the activity exerts on these agro-tourism structures that determines on the environment. All this is proposed paying particular attention to energy efficiency and resource saving.

This is illustrated in the following chapters.

The management of waste the produced occupies chapter 5.1.1 illustrating the initiatives and the attention to be dedicated to improving separation and separate collection in the sector.

Chapter 5.1.2 it is dedicated to electrical and thermal energy with particular attention to the possibility of production from renewable sources/generation.

Then follows the chapter 5.1.3 in which it is treated water resource management with specific regard to the reduction of waste.

Finally, with chapter 5.2., the management methods of the agro-tourism structures are underlined, with due consideration, considering it essential to associate the responsible behavior of tourists and staff with the efficiency of the technologies and systems.

6. Final conclusions, original contributions and future research directions

The final conclusions of the doctoral thesis are presented in accordance with the proposed objectives. Within the chapter are presented the conclusions of the doctoral thesis, the theoretical and practical contributions are highlighted, and the future directions of research are identified as follow. There are three main direction regarding the future research directions:

- Implementing and monitoring the model created regarding environmental optimization in an agro-tourism structure.
- New ranking for the classification of tourist accommodation establishments with the functions of agro-tourism boarding house type because of the gaps in terms of criteria for agro-tourism structures (no environmental criteria). Highlighting the link between agro-tourism and ranking.
- Micro-management indicator for agro-tourism structures.

7. Annexes

Attached to annexes are presented example of information documents associated with agro-tourism structures in order to analyses the information obtained.

8. Bibliography

In the bibliography there are listed 150 bibliographic titles used during the doctoral stage to prepare the research reports and the doctoral thesis.