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– DOCTORAL THESIS –
REZUME

**HUMAN-ENVIRONMENT RELATION IN THE DANUBE DELTA,
FROM THE PERSPECTIVE OF RESILIENCE**

**CASE STUDY: POPINA-SFIȘTOFCA AREA,
C.A. ROSETTI COMMUNE**

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Key words: social-ecological resilience, Danube Delta, ecological restoration, Russian-Lipovans, social construction of nature

INTRODUCTION

After 1990, following the accession to the European and international environmental programs, some rural communities in Romania, whose traditional economy was based on natural resources (eg. wood, fish etc.), became part of strictly protected areas where the conditions of use of these natural resources were subject to new series of regulations.

This is also the case for the Danube Delta, one of the least populated regions in Europe, located in the easternmost part of Romania (being, since 2007, the easternmost continental point of the European Union) a UNESCO World Heritage Site since 1991.

Since this year, the population of the delta is steadily decreasing by 16,000 in 2002 (Iancu 2006), while the last census in 2011 shows less than 11,000 of inhabitants. The population is mostly Romanian, but about 10% of the population is of Russian-Lipovan ethnicity and a significant percentage of ethnic Ukrainians live in the Delta villages.

Once the delta has become an international protected area - after four decades of exploitation under the communist regime - the economic activities, the resource modes of exploitation, the local development and ecological restoration of biodiversity are subjects to constant debate and projects at regional level.

Environmental regulations imposed within the perimeter of this special geographical region are changing, while local communities are often in a position to compete with the environment in this process of managing the region's ecological values.

Research on social-ecological systems and current local responses to policy change are preliminary and no systematic understanding of adaptation practices - or non-adaptation - has yet been set up under the new conditions.

Apparently, the Danube Delta is geographically, economically and socially homogeneous, but geographic disparities between villages in the seven communes (some have access to the Danube, others have access only to canals, other localities have access to the Danube and the Black Sea and, for example, CA Rosetti village has no access to any watercourse), generate different situations of adaptation. Thus, some localities have several protective factors, others have more risk factors and are more vulnerable to change.

This study focuses on the socio-ecological area of Popina-Sfiștofca, located in the northeastern part of the Danube Delta, on the territory of C.A. Rosetti commune, and follows the relationship created between the human community in Sfiștofca and the neighboring area called Popina. The relationship is constituted by the interdependence between the population of Sfiștofca and the Popina land - once providing the basic natural resource for the maintenance of the local economy, while today is directly influenced by the contemporary conceptual changes related to the natural environment. Thus, aspects of how land-use transformation takes place according to the cultural-political perception of each historical period are revealed, as well as aspects on how the status of the land has direct and immediate consequences on the social group on which it depends economically.

To support these hypotheses of socio-ecological and conceptual interdependence, the paper deals with some key concepts: resilience, nature, ecosystem, protected area, biodiversity. The paper ends with a description of a new type of relationship that is established between local people and external social stimuli that become (or have the intention to become) factors in the resilience of the community.

Research objectives

The general aim of this study is to analyze the dynamics of political, social and cultural transformations in the Danube Delta Biosphere Reserve, through the concept of resilience.

The overall objective of the research is to analyze the evolution of the relationship between the natural environment of the Danube Delta and the human community, and how they evolve by influencing each other. The research also aims to analyze the nature of the new social

relationships created by the community and the extent to which they contribute to community / local resilience.

Specific objectives

- To describe the history of Popina and Sfiștofca taking into consideration the relationship between Popina's natural environment and the Sfiștofca community;
- To analyze how the organization of the natural environment by the society and the scientific community has a direct influence at micro-local level on communities dependent on natural resources.

General questions of the research

- How did man use the natural environment of the Danube Delta in the past?
- How has the human-natural relationship evolved in RBDD?
- How do the RBDD communities experience the political and economic changes in the past 27 years?
- How are these changes perceived, assumed, understood and appropriated according to their attitude towards nature and natural resources?
- What are the general conceptions of nature in contemporary society?
- What is socio-ecological resilience?
- To what extent does a community dependent on a natural resource maintain its functionality, in the absence of the resource to which it is dependent? What kind of relationships are being built in this new context?

Methodology of research

This research is based on methods used in social sciences, epistemologically located, in the constructivist research model, where reality is a social construct (as described in Iluț P. 1997).

The information and the analysis from the study are based on several types of data, delimited in the following two categories:

- Theoretical research: books, articles, official documents
- Field research: observation, participant observation, semi-open and open interviews.

The field research in the village of Sfiștofca took place over a longer period of time and consisted of frequent visits during 2011-2016, materialized in participant observation and open interviews with the local administration, day laborers, fishermen, women from the village, but also with what we call "outsiders" in this study – [other] researchers and artists [that I've met in] the village. Open interviews took place with local residents and representatives of the institutions and organizations involved in managing the Danube Delta Biosphere Reserve.

The analysis of the data was carried out by various methods: discourse analysis, interviews interpretation, interpretation of field observations and verification ("validation") of interpretations and results obtained by locals (for example, for the Popina Ecological Restoration chapter).

Discussions and interviews with the locals aimed at understanding the relationship between Popina II ecological restoration area and the inhabitants of Sfiștofca village from their formation to the present day.

The collaboration with the so called "outsiders" has led to the observation of the emergence of a vision of the entire reference area, a vision belonging to an institutional category unrelated to the Danube Delta and - even less so - to the Popina-Sfiștofca area, but which currently represents the only strategic-resilient vision for the Popina-Sfiștofca area.

For the ecological restoration project in Popina II chapter, two main sources of information were used: institutional sources (expert papers and interviews with experts and employees of these institutions) and local sources (interviews with residents and the local

government and observations made in Sfistofca village). The institutional sources were the main institutions involved in ecological restoration programs in the region: the Tulcea County Council, DDBR, DDNI and the Institute of Geography and Geoecology IfGG / WWF.

The Tulcea County Council provided information on the situation of concessions in the Popina fish farm area, as well as its legal status, project plans and figures.

ARBDD provided maps of vegetation, ecosystems and soils in Popina and clarified some questions related to the monitoring of the ecological reconstruction process in Popina.

The DDNI has made a significant contribution to understanding the history of the use of Popina's land from setting up until 1997 and provided plans with proposals for interventions for ecological reconstruction works.

I have understood and interpreted the concept of resilience based on the available literature on the subject, by linking it to some anthropological approaches to the human-environment relationship.

As a relatively new and transdisciplinary concept, resilience ensures the permeability of perspectives on a complex phenomenon such as the human community in Sfistofca in relation to:

- Environment and natural resources in the Popina area (economic factor)
- Outsiders and CRLR (cultural-identity factors)
- Public authorities - local, regional, national.

Structure of the thesis

This research looks at how the evolution of a territory from which a community is dependent, has direct influence on the evolution of that community, and how the way in which the natural environment is perceived and managed globally has regional and especially micro-local effects.

The thesis aims to analyze to what extent a community dependent on an ecological system responds to environmental disturbances in response to the external challenge.

Although originally an exemplary community for the relationship of human-nature reciprocity, called "traditional", the community of Sfistofca is forced by the regional political

context to, practically, "break" from its original socio-ecological system, while "encapsulating" and "museuming" the community by external forces (the `outsiders`).

Referring to the so-called "Popina-Sfiștofca" area, the thesis focuses on two major historical lines:

- The history of the village of Sfiștofca, ethnic, cultural and economic profile;
- The history of the evolution of the Popina land, from its formation to the present.

An important part of the research is the cultural framing of the original ethnic group, in order to better understand the depth of today's identity and cultural transformation through cultural-educational stimuli. Thus, the chapter on the history of the Russian-Lipovan population in the Danube Delta describes its origin and then the ethnic, the religious and the occupational profile of the community in Sfiștofca village.

In the pursuit of the population's history and of the land use in the Popina-Sfiștofca reference area, the cultural context of each given historical moment is taken into account. In other words, we must take into account the fact that each historical stage has a conceptual, socio-cultural "umbrella" that dictates the meaning of the concept of nature and, also, the way to relate to it.

The thesis is structured in seven chapters, dealing with: the concept of resilience and the human-nature relationship (chapter I), general aspects related to DDBR (chapter II), the population of the Danube Delta and the commune of C.A. Rosetti, historical and ethnographic data (chapter III), history of fishing at the mouth of the Chilia branch and a brief description of current fishing rules (Chapter IV), description and classification of Sfiștofca village within C.A. Rosetti (chapter V), description of the Popina-Sfiștofca area, its history and ecological restoration in Popina II (chapter VI) and analysis of the resilience of Sfiștofca village (Chapter VII).

CHAPTER I. *Human-nature relationship and socio-ecological resilience*, discusses concepts such as nature, social construction of nature, describes the human-nature relationship in the Danube Delta - based on previous studies and publications; the concept of ecology as a relationship, the socio-ecological imbalance in the Danube Delta, the concept of socio-ecological resilience.

CHAPTER II. *The Danube Delta Biosphere Reserve* describes the natural setting of the Danube Delta, the delta formation providing cartographic representations. The chapter briefly outlines the history of the anthropic changes from the late 19th century to the present. The institutional-administrative framework of the DDBR - the Danube Delta Biosphere Reserve Authority and its role in the wider context of nature protection in the Danube Delta, are presented.

CHAPTER III. *The population in the Danube Delta* presents data on the population in the Danube Delta in general, with an emphasis on the population of C.A. Rosetti, as well as causes of the demographic decline. Descriptions of the Russian-Lipovan population and some elements in the history of its settlement on the territory of the Danube Delta, especially at the mouth of the Chilia branch, are provided. The chapter also emphasises the emblematic figure represented by the Old Believers ethno-confessional group in the Danube Delta, as well as its main professional and religious features.

CHAPTER IV. *Fishing, the main economic activity in the Danube Delta* - is a continuation of the previous chapter, developing the history of fishing on the Chilia branch, in relation to the physico-geographical evolution of the mouth of the Danube. It describes the socio-political situation, fishing regimes of the sec. 19 and the close relationship of the inhabitants of the settlements at the mouth of the Chilia branch, with the natural waters, by fishing.

The population described in this chapter is the founding population of Sfiștofca village, which is discussed further in the following chapters.

CHAPTER V. *Sfiștofca village within the C.A. Rosetti commune* contains data on village formation in relation to the formation and evolution of Chilia's mouth, on the basis of

cartographic information and empirical data in the field. It also describes the present cultural and social life in comparison to the other villages of the commune.

CHAPTER VI. *The Popina-Sfiştofca area. Popina fish farm development and its ecological restoration in relation to Sfiştofca village* - describes the history of Popina, from its formation and the communist planning and fish farm construction, to its ecological restoration and its ambiguous status today. The chapter underlines the high dependency of the inhabitants of Sfiştofca village on Popina, from the beginnings of its formation up to the present time, as well as the attitudes of local people towards Popina and the local attitude and perspectives on the ecological reconstruction processes and the current state of the ecological restoration works in Popina.

CHAPTER VII. *Resilience in the Popina-Sfiştofca area* – the last chapter analyses the socio-ecological resilience in the Popina-Sfiştofca area, by tracking vulnerabilities and identified resilience factors. The (social) resilience of the Sfiştofca community seems to be related to the (ecological) resilience of the Popina ecological reconstruction area. The chapter also presents the perspectives on the future of this area, followed by conclusions related to identity reinvention, empowerment.

CONCLUSIONS

The research shows how the adaptation of a community within a socio-ecological system takes place at a subtle, cultural, level, underlining that without the transformation of the meaning of the environment and of its own identity, the renewal of the community is not possible.

The analysis of the resilient capacity of Sfiştofca village implies a series of nuances. We cannot speak of resilience at present in Sfiştofca, as long as we understand resilience as a functionality of the socio-ecological system to which we refer, but we can observe indicators and resources (stimuli) that "push" the community towards adaptation and transformation

These impulses are fresh and we can not predict how the village will evolve in the future, despite the scenarios and despite the fact that some community representatives respond positively to the challenges of "outsiders." In addition to the outsiders' support, there is also a need for institutional support, so that the community is encouraged to stay in the village or that the population who left the village is motivated to return. Otherwise, the resilience of Sfiștofca will mean strictly maintaining the name of the locality and the place that will be populated in the future by people coming from outside, which would mean, practically, a replacement of the present community, not exactly its resilience.

As we have seen in this thesis, due to the ecological reconstruction of the Popina area, the ecological environment is not resilient (in the sense of restoring its original ecological functions) only partially (if we can speak of "partial" resilience) and this ecological situation leads to economic destabilization of the dependent community.

The dependent community on the natural resource from the ecological reconstruction area, Popina II, responds - in the absence of alternatives - to the educational-cultural challenges coming from outside the Danube Delta, rather in order to adapt its cultural-identity than to maintain (at least) its economic identity.

Original contributions

The originality of the study lies in the perspective of the socio-ecological relationship analyses, applied to a less known area in the Danube Delta. In the Danube Delta, from now on, a micro-local and resilient approach has to be taken into consideration, as it has been found that one of the causes leading to the decline of the population alongside the degradation of the natural environment, is the lack of a vision and solutions adapted to each microzone, in part.

The results of the research on Popina II's management and use regime, as well as the current state of the ecological reconstruction project, are also an original aspect of the thesis, a part that reveals a major malfunction in the management of the DDBR.

The use of the mode of use, together with the attitude of the local population towards the natural environment we refer to (Popina II), is definitely an original contribution to the

configuration of a general report in the Danube Delta to the natural environment by adding this complex example.

Prospects for further development

The present study could be extended by similar research in the Periprava-Popina area, given that the economy of this village has long been based on the northern part of Popina (Popina I). Such a research could highlight the use of a former fish farm that is not - as opposed to Popina II - in ecological reconstruction, but still has the status of an economic zone.

Then, taking into account the geographical, economic and ethnic diversity characterizing C.A. Rosetti, a comparative analysis of the formal and informal economies of all five villages in the commune, would mirror the situation of the social, economic and cultural diversity of the entire Delta.

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