

# essential report

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Master project  
C.A. Rosetti/Danube Delta

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## I. Introduction

At the end of September 2014 our group of seven students was facing a challenge: Planning in a region under totally different circumstances, as we were normally used to. None of the students has experienced a remote place like Sfiștofca, which is in the municipality of C.A.Rosetti – at least not in the setting of a planning task. But: Challenge accepted!

This document is named “essential report” and is a first step of approaching the quest in doing some research on different topics. Spending time on this rather general overview of the region means on the one hand to process the experience the students made at the site itself and on the other hand to embed this experience in an expanded pool of knowledge.

On the basis of this the single project ideas will be pursued.

## II. History of Colonization and Ethnic Composition Today in the Region

By Karin Danner

As Europe's largest remaining natural wetland, the Danube Delta is one of the continent's most valuable locations consisting of large habitat for wildlife and comprising great biodiversity. The region has only been existing for about 12.000 years and is therefore regarded the youngest on the European continent. It is the result of alluvium unceasingly deposited by the River Danube at its mouth. On account of this continuous process the Danube Delta is subject to permanent change. (Kiss 1988:10f)

But not only the region's landscape can be considered unique. Just as landscape in the Danube Delta kept and still keeps changing through the ages, also the peoples inhabiting the area settled and often left again for many different reasons in the course of time.

Owing to its eventful history, Romania, and more precisely the Dobruja (nowadays the eastern part of Romania on the Black Sea coast, 'Dobrogea') has always been a place of ethnic and cultural diversity. Conveniently situated by the river and the Black Sea, throughout the history the Danube Delta continued to be a place of settlement, transit and refuge for the most divergent peoples.

Three major factors persuaded people to settle in the Danube Delta:

- remote areas, that provide shelter from persecution
- proximity to the black sea and Danube river (routes for maritime shipping)
- the abundance of rare natural resources (fish, reed)

(Dobraca 2005:17)

### **Early settlements in the ancient world and the Middle Ages**

Recorded history first noted the Delta under Dacian control before being conquered by the Romans. After invasion by the Goths, the region changed hands many times. Archeological findings also proof that initial settlements can be dated back to the Bronze Age/Iron Age, when the Caraorman and Letea sandbanks seem to have been populated and were used as a transit point by the Greeks from the 5<sup>th</sup> - 3<sup>rd</sup> century BC. Scythian and Dacian tribes are mentioned as population of the North-Dobrujan areas in the 8<sup>th</sup> to 6<sup>th</sup> century BC and in the perimeters of the Murighiol and Mahmudia villages traces of Getic and Dacian settlements (5<sup>th</sup> – 3<sup>rd</sup> century BC) could be found. (DDNI, 2006:110)

Colonization and development of the settled region went from outlying areas (i.e. black sea coast) to the center of the Danube Delta. The first settlements (founded by the Geto-Dacians,

then taken by the Greeks and further on by the Romans) remained preserved until the Byzantine Empire and were expanded in that period. (Dobraca, 2005:19)

The ancient and medieval period was particularly marked by the importance of trade activities in the Danube mouths. To safeguard flourishing trade, traders from Greece, Geneva and Venice already developed sales areas along the Black Sea Coast around the time of 1,000 AD. Those first central cities were first listed on nautical maps: Sulina at around 950 AD, Chilia Veche and Sfântu Gheorghe in the 13<sup>th</sup> and 14<sup>th</sup> century AD. Until the 13<sup>th</sup> century the Danube Delta was alternately ruled by the Byzantines and the Bulgarians and became part of the Ottoman Empire in the 15<sup>th</sup> century. Thus Turkmens, Oghuz



Image 1: Map Danube Delta  
Source: Dobraca, 2005:18

Turks and Cumans started residing in the area.

It was not until the 17<sup>th</sup> century that the inland areas of the delta (Caraoman and Letea) were inhabited - first by Slavic immigrants and later on by spontaneous settlement of Bessarabic and Transylvanian shepherds. (Dobraca 2005:19)

In the 18<sup>th</sup> century Lipovans, who emigrated from Russia, settled down in the Delta to flee persecution by the Russian Empire. Also Ukrainians, descendants of Cossacks, who originally settled alongside the River Don and got deprived of military power found refuge in the remote areas of the Danube Delta. Initially settling in the west, they later moved inland. The immigration from the Bessarabic region Bugeac and the Ukranian settlements Vylkove and Kilija substantially contributed to the growth in population in the villages around Letea. This considerably affected the villages Chilia Veche, Periprava and Sfîştofca. (Dobraca 2005:19)

When the Dobruja was annexed to Romania in 1878 populating the area with Romanian natives was systematically carried out by the leading powers. At first, colonies along the Danube branches were founded (Carmen Sylva und Floriile (today: Crişan)). Favours, such as plots of land in the size of 5 hectares, were granted, which encouraged growth of the Romanian population. In the beginning of the 20<sup>th</sup> century the last settlements were founded along the Sulina channel. (Dobraca 2005:19)

### **Rumanianization after WWI**

On the model of the western world the leading powers in time of Greater Romania (1919-1940) followed the idea of creating a national-state, which meant controlling a closed national territory inhabited by a homogenous group of people. This led to an aggressive policy of Rumanianization. Expropriation, linguistic and cultural unification starting in 1919 resulted in major emigration of the Turks and Tatars. While the percentage of Romanians totaled up to only 32% in Tulcea county in 1878 this number was raised up to 61% until the 1930s (by colonization from Moldova and Transylvania). This idea of a unitary nation-state has been a key concern of Romanian leaders ever since and became an all time priority in the interwar and the Communist periods. (Sallanz, 2005:15f)

When the Dobruja eventually was separated into a northern (Romanian) and southern (Bulgarian) part by signing the Treaty of Craiova in 1940 forced resettlement of population of Bulgarian ethnicity living in Northern Dobruja (61,000 people) to Bulgaria, and the resettlement of ethnic Romanians living in Southern Dobruja to the northern (now Romanian) part of Dobruja was implemented. In this period of time about 100,000 Romanians were forced to leave their homes in Southern Dobruja and other parts of Bulgaria. Ethnic diversity has strongly decreased after WWII in the Danube Delta. (Sallanz, 2005:15f)

### **Communist Era**

It was not until the decades between the 1960s and 80s when further settlement occurred. A government program aiming at the reorganization of the Danube Delta into agricultural land led to a sudden growth in population when workforce for fish-farming, cultivating reed and agriculture as well as military troops arrived in the Danube Delta. At this point in time the population of the Danube Delta reached an all-time high of about 21,000 inhabitants. (DDNI, 2006:119)

### **Ethnic Diversity Today**

In the entire Danube Delta nowadays all of the colonies in the area are marked by immense decrease in population. This is especially drastic in remote villages like Sfiştofca - within the past 30 years the village has lost the majority of its population. (Dobraca 2005:19) This trend can be observed in the entire municipality C.A Rosetti and in general this tendency of decline applies for the majority of the Danube Delta settlements. (Further elaboration on that topic can be read in the chapter "Living Environment")

Nevertheless there can still be found a range of ethnic diversity in the Danube Delta. A few people continue living there, covering a wide range of ethnic background. Progressing linguistic and societal assimilation, as well as migration from those economically disadvantaged regions to more prosperous areas in Romania or even Europe leads to a cultural homogenization of the area. (Scharr, Gräf 2008:163ff)

Nowadays, alongside the Romanians, who represent the majority of population, the presence of Russian-Lipovans, Ukrainians, Turks, Tatars, Bulgarians, Greeks, Armenians, Macedonians, Hungarians, Roma, Jews and Italians is documented. (DDNI, 2006:116)

### **Traditions – Handicrafts – Religion**

Traditionally people in the Delta worked as fishermen and so did and still do the Lipovans and Ukrainians. When fishing was industrialized and fishing licenses for commercial use started being sold, many men lost their jobs and income. Nowadays some of the Delta inhabitants still keep their tradition of fishing alive but most of them are doing this illegally (without buying the family-fishing license). Some of them even have knowledge about meshing fishing nets in a unique Delta-way but with no possibility of passing that knowledge on to a younger generation.

Especially the Lipovans strongly stick to their traditions and try to keep them alive in daily routine. Speaking Russian, celebrating traditional mass, living in traditional houses - usually painted blue and covered by the typical reed roof, wearing beards and dressing in traditional clothing or singing old Russian songs is their way of celebrating their cultural heritage and creates a tightly knit community.



Image 2: Lipovans wearing traditional clothing sitting in a typical fishingboat  
Photo credit: National Archives of Romania



## Conclusion

Despite the unfavorable living conditions in the Danube Delta, there have always been people who settled there, leaving their knowledge, language and cultural characteristics behind. The delta is sparsely but diversely inhabited since the 15,000 inhabitants originating from 12 different ethnic minorities, many of them even retaining their old customs. A big variety of people in such remote area and very confined space can definitely be considered unique. This uniqueness of cultural variety is being threatened by difficulties the population is forced to conquer on a daily basis. Unemployment, lack of basic infrastructure, sometimes very harsh and lonely winters that can isolate the area or deterioration of water quality, to name but a few obstacles, make life in the Danube Delta very difficult. Even more since many restrictions (fishing, building houses etc.) are imposed on the inhabitants. Therefore, the Delta is continuously losing population, many of them due to work migration, people leaving for higher education or simply seeking for better living conditions somewhere else.

The Danube Delta has always dealt with streams of immigration, often people seeking refuge. Since progress did not (could not?) arrive in the area, these streams go the other way, which raises an important issue: Whether to improve the local circumstances and encourage people to stay even in the most remote areas of the Danube Delta, or simply leave some of the delta-villages to their fate and concentrate on developing other centers.

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Lipovans: Photo Credit: National Archives of Romania.

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Map Danube Delta: DOBRACA Lucien: Das Donaudelta: Raumstrukturen und Entwicklungsoptionen. In: SALLANZ Josef (Hrsg.) (2005): Die Dobrudscha: Ethnische Minderheiten - Kulturlandschaft - Transformation: Ergebnisse eines Geländekurses des Instituts für Geographie der Universität Potsdam im Südosten Rumäniens. Potsdam: Universitätsverlag. S.18

### III. Traditional Architecture and Urban Framework

By Corinna Schmidt

By taking a walk through the rural villages of the sabulous veldts of the Rumanian Danube Delta, nature itself is unmistakably the essential element and distinctive property in this region. The Rumanian part of the Danube Delta is not only known for its famous various flora and fauna, but also for a region where scattered houses of the rural population seem to be incomparably closer to nature than every other natural based building structure in Europe. Although this profound link to nature does not seem to find his path beyond the surface, as an author from the Igloo's magazine (2008) pointed out: *The lively colours they are painted in and their small decorative technical innovations seem to reflect the need to extract these happy and revealing accidents from the homogeneity of nature, to demarcate, visually and aesthetically, the territory of man from that of the elements.* Scattered buildings because of the mostly comprehensive continuing population decrease during the last decades in the region (especially concerning the north-eastern part of the Dobruja, next to the Ukrainian border) and subsequently occurred abandonment and following decay of houses; proximity to nature because of the nearly area-wide use of local, natural material in terms of house construction for the last centuries.

This chapter of the analysis of the Rumanian Danube Delta is supposed to provide an insight into the regions traditional architecture, with its particular arrangement of housing space, construction method and use of natural material, as well as into an overview of the local settlement history and present urban framework.

#### **Traditional Architecture**

##### **Appearance and Background influences**

Due to continuous in- and e-migration of different races from Rumania, Ukraine, Russia, Bulgaria, Germany, Greek and Turkey (cf. Excursion report 2009: 101), people themselves are supposed to be influenced in their way of thinking and treating the environment, as well as in their way of living concerning land use, mechanic art and traditions through the last centuries. Of course architecture and constructing method was and still is considered to expose themselves to these various cultural influences.

Within this cultural framework depending on the local ethnic majority, some houses in particular parts of the Dobruja were constructed based on the Ukrainian model, others were constructed mostly based on the Russian model. These models can be basically distinguished by the characterisation of detailed house design. An apparently important principle of the houses' characterisation in the Rumanian Danube Delta is the one-storey building method (cf. Voica 2014a), which was among other things additionally firmly adhered in a building law by the European Union (cf. Voica, 2014b) as well as the commonly used material like clay, reed, wood and sand (ingredient of clay-brick). Another typical attribute are, as already mentioned in the introduction of this chapter, the bright colours of buildings faces, as well as the recessed mainly wooden balconies at the front entrance side of the houses.



Fig. 1.: House in C.S. Rosetti , source: G. Ludwig (28.09.2014)



Fig. 2.: Traditional House in the Danube Delta, source: romaniadacia.wordpress.com/2014/03/22/danube-delta/.

In addition to the superficial similarities of urban structure, buildings in the Rumanian Danube Delta feature a particular arrangement of housing space, which is considered as a simple module- structure (Ivanov 2010: 14). The author points out that basically the traditional house and the main functions were scattered in the land because of hygiene reasons, primarily because of the absence of sewage network in such remote areas; 84% of Rumanian villagers have no sewage grid, 85% have their toilet in the backyard and 91% are not connected to natural gas heating grid. The division of living space into 3 basic functions represents a possible interpretation of the above mentioned figures: The night - living area, kitchen and bathroom, which are in most cases completely separated from each other in the plot in order of expressiveness and intimacy positioned relative to the street. The night area is usually located near the primary access perpendicular to the street (ibidem.). Kitchens as well as living areas are mainly located in the background, toilets way behind in the back of the yard, whereas the bathroom normally is located adjacent to the living area and kitchen.

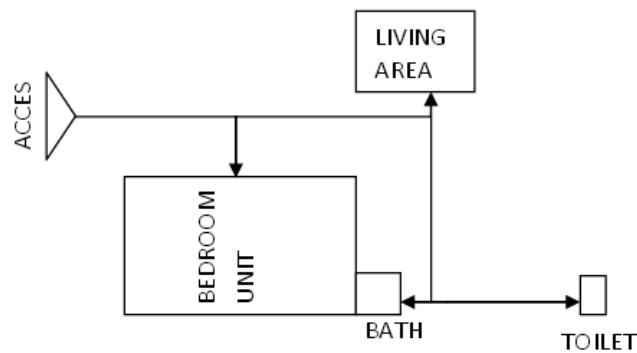


Fig. 3.: Arrangement of living space, source: Ivanov, 2010.

## Materials and Constriction method

One of the remarkable characterisation of buildings in the Rumanian Danube Delta is the previous and present way of constructing, as well as the used material. The roof is usually made of crosswise cutted **reed** sticks and needs to be renewed every 15 to 20 years. This plant is the most abundant natural resource available in the region (detailed information about figures in chapter “Structure of the Danube Delta economy”), due to the permanent presence of water, which encourages luxurious growth. Harvesting can be done mechanised as well as in a manual way (cf. Ivanov, 2010: 22). **Clay** and **straw** are used for building clay-bricks as well as for the facade. The unburnt clay and straw brick locally called “Chipric” consists usually of clay and organic material (very often straw) and is supposed to be burned in the sun for about 30 to 60 hours (ibidem.: 19). The second way of using these materials is the mixture of a facades plaster, the so called “Ciamur”. *Clay and sand is gathered from a moderate greasy soil, mixed together either water and straw until it has achieved a decent plasticity, after which it is either put into a mold and dried or used on site as a “Ciamur”, which is about 5 cm thick* (ibidem.: 19). In general clay provides multiple advantages: it regulates air humidity, economises, energy, building material and cost of carriage, self-construction is easier, the material is re-usable, it accumulates heath and it protects from irradiation. The disadvantages are for example that clay is no standardised construction material, it disappears during the drying-out process and additionally clay is not water-resistant. **Wood** is rarely available, because of the absence of forest in the region. Ivanov (2010: 21) illustrated that the only forests with a considerable size are protected areas. Therefore wood, or better unfinished tree trunks (found in nature) is sometimes sporadically used for timber frames (ibidem.: 19). Besides these materials, people also used to work with **sand**, the most visible element in this region, which is basically used as mortar and for mixing cement on site. But sand itself as main part of the soil is also forced to be an ingredient of “Chipric”.

Within the framework of using almost exclusively natural material, there is indeed low polluting pressure to the environment. Architect Ileana Mavrodin from *Arhiterra* points out that a more widespread use can reduce environmental damage because their construction and upkeep demands low energy consumption. Additionally houses built from clay or cob – a mixture of clay, water, sand, straw and other natural materials – are cheap and easy to build. “Most of the construction materials can be found on site,” says architect Ileana Mavrodin. “From digging the foundation, we get the earth needed for the walls, and the vegetal soil is used for the roof.” (cf. Ipsnews, 2014).

Due to several restrictions and rules from the European Union, as well as from the Danube Delta Biosphere Reserve people are nowadays supposed to build their houses without using non-local material (cf. Voica, 2014b), which is indeed a challenge, facing restrictions concerning the access to reed and high prices to build a traditional house. One of the oldest building regulations written in form concerning Clay-buildings in Germany and Austria was decreed in 1760 as baronial forestry regulation. Yonder document promoted basically certain fireproofed construction material, after the interdiction of using wood as such material, without even mentioning the simple word clay or loam in order to avoid people’s horror (cf. Schneider/ Schwimann/ Bruckner, 1999: 198). Basic ratifying attempts in the last century have been discouraged under the title of “Lehm-bauordnung” in 1944 in Germany and concerned essential regulations for earth constructions. This marked the first attempt to detail rules and thoroughly document building techniques using earth based materials. In 1951 the compendium was

included in the German DIN 18951, as a technical stipulation for construction works. After these initiatives until 1956, other norms and regulation projects were elaborated, but were not applied. All pro earth building initiatives suffered in 1971 a setback, all the regulations were decreed as obsolete, as well as uneconomic and were retreated (cf. Ivanov, 2014: 17). After an intervention made by the Interior Minister of the federal German state Hesse in 1982, *and after the recent decree of the executive of the same land, these are still valid for approving earth constructions in the absence of technical regulations so that the utilizing mode explained in the old regulations won't have to be checked for every singular case* (ibidem.). Some years ago the Earth Architecture Association in Germany, "Dachverband Lehm", edited an approved technical compendium respective constructions in earth building since 1998, the rules having recommendation character and being used as such in 11 federal states in Germany (ibidem.).

## **Conclusion**

But for all that, as we experienced during our excursion in the Danube Delta, it did not seem to be clear that the traditional way of building houses is cheaper as the "modern", usual occurring way in Europe of construction. Due to privatisation of land and partly impossibility of use of land, traditional material became partly not affordable for the local population, which was also confirmed by Voica (2014b). Eventually in my opinion we have to ask ourselves what sustainable development means when people are not even able to gather local natural resources from the region. Furthermore old craftsmanship as well as "normal" ways of constructing will maybe get lost.

## **Urban framework**

### **Overview of the local settlement history**

Despite the hard life conditions like the challenging climate conditions and hazards as well as the remoteness of the area, people settled down for different, comprehensible reasons over the last centuries. The first reason was the remoteness itself, indeed appropriate concerning this land, which provided resort. Secondly and thirdly the main reasons for immigration were shipping and uncommon natural resources, such as reed or fish (cf. Sallanz, 2004: 17). So people where on the one hand forced to settle down, but for some it was their simple idea to stay here by choice. Nowadays the Rumanian Danube Delta exhibits a continuing decreasing population number of 170.000, of course unequally distributed to 4 cities and 61 villages in the region (ibidem.).

According to Sallanz (2004: 18) the direct settlement occurred in a spiral way, where borderland was captured at first. Furthermore coastal stripes happened to be populated, where trade flourished step by step. The city of Sulina played an important role during the 10<sup>th</sup>, 13<sup>th</sup> and 14<sup>th</sup> century as a reloading point for different local goods. As a result of the booming coast, the midland (today area of the municipality of C.A. Rosetti) happened to be populated, in the majority of cases with Slavic population. Last colonies were founded in the 20th century (ibidem.: 19) (more to read about this topic in chapter "History of colonization and Ethnic Composition in the Region").

## Present urban framework

The villages and the region in general are nowadays indeed characterised by a highly rated spatial isolation, especially due to the lack of modern infrastructure. This concerns especially the spots in the Ukrainian borderland, but not the capital of the region Tulcea. 88,5% of the villages can be understood as small or very-small villages with a local number population less than 500 (Sallanz 2004: 19). These villages are exposed to the already mentioned present decrease of population. A clear example for this is the locality Sfistofca, which lost about half of its population during the last 20 years or Gorgova, where 60% of the people decided to migrate from this village (more detailed information about the demographic process in the region in chapter “Living Environment and Social Structure in the Danube Delta”). On the other hand the city of Tulcea duplicated its number of population through the last decades (ibidem.: 20). Corresponding to this development these villages show a continuing growth concerning abandoned houses and open areas, based on decomposition of former occupied buildings.

An important decision in terms of land use and preserving nature was taken in 1990 where a biosphere reserve was declared by the Government of Romania, which is a supposed to be *a public institution under the coordination of the Ministry of Environment and Forests, responsible for the management of reserve, including the conservation and protection of the existing natural heritage; promote and support the sustainable use of the natural resources; provision of support, based on the results of research, for management, education, training and services* (Sladonja, 2014: Chapter 10).

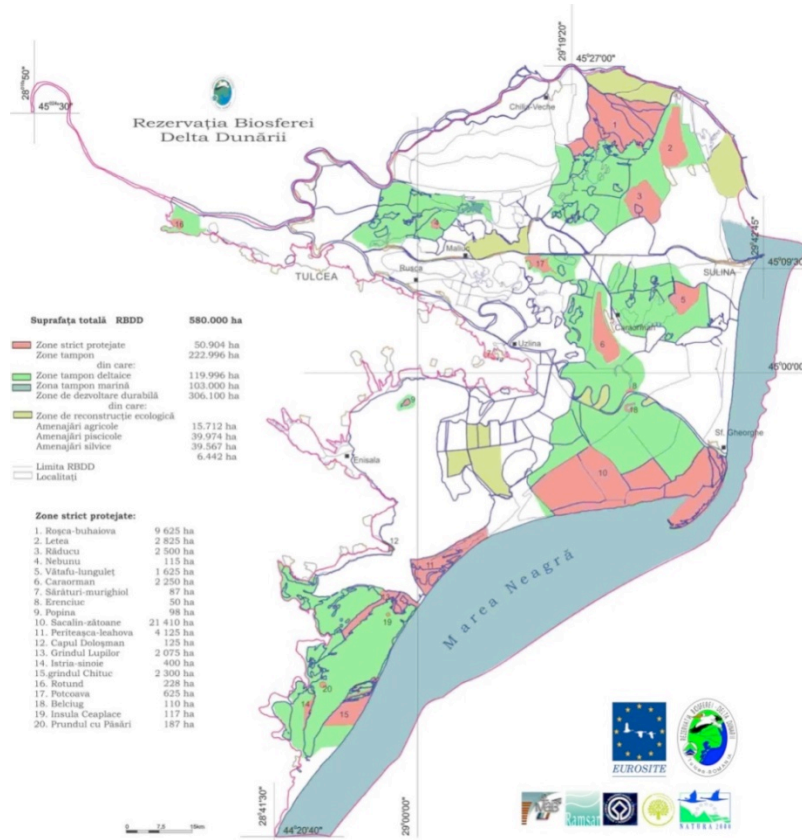


Fig. 4.: Zones of the Danube Delta biosphere reserve, source: [www.intechopen.com/books/protected-area-management/be-natur-transnational-management-of-natura-2000-sites](http://www.intechopen.com/books/protected-area-management/be-natur-transnational-management-of-natura-2000-sites).

In terms of the biosphere reserve, the area got divided into different zones which define the convenient use of land. 50,904 ha are strictly protected areas and preserve and protect birds, forests with original aspect, salted lands and some samples with special deltaic landscape (cf. Masterplan, 2006: 6). 222,996 ha are buffer zones (marine buffer zone: 103,000 ha) which surround generally the complete protection zones in order to reduce the economic activity and the anthropic pressure over them and the transition, or economic zones integrates 306,100 ha (ecological restoration: 15,712 ha, agricultural polders: 39,974 ha, fish ponds: 39,567 ha, artificial forests: 6,442 ha) (cf. Sladonja, 2014: Chapter 10) and representing 52.8% of the DDBR area. If we add the 38.5% representing the buffer zone where some economic activities are allowed, it comes out that in only 8.7% of the DDBR area they are forbidden. In the transition zone there are some areals in the dammed precincts proposed for ecological reconstruction, some being abandoned as inefficient, others with the purpose to avoid ecological lack of balance (cf. Masterplan, 2006: 6).

## **Conclusion**

Of course the explained zones to not only preserve nature and natural environment, but also limit the access to nature and natural resources for local population. The human being in general in this region is always kind of supposed to pit himself against the forces of nature (within painting their houses in non-natural colours, etc. ), the relationship and link, which is indeed important as a part of the identity of people's minds, is of course adversely affected by this struggle. The question here is if we are allowed, in terms of resilience and sustainability of planning, to develop land, without supporting the people to keep up with this development.

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## IV. Living Environment and Social Structure in the Danube Delta

By Bernadette Gugerell

As one of the most sparsely populated areas in the European Union, the Danube Delta is struggling with various problems related to its demographic conditions. Emigration, over aging tendencies and the loss or non-existence of basic infrastructure are challenging the region increasingly and apply supplementary pressure on the population remaining. This chapter wants to give an overview of the demographic situation and development of C.A. Rosetti which is known as the most isolated municipality in the Delta. Further on, there will be a short analysis of the social institutions and the relevant stakeholder for the region and the village of C.A. Rosetti.

### Timeline

The population in C.A. Rosetti is decreasing since the year of 1990, where data was available for the first time after the fall of the communist regime. Though, this development is characterized by various ups and downs until the year of 2000. Starting from 1.438 in 1990 to 1.222 in 1995, there could be registered again 1.321 inhabitants in the following year of 1996. However since the beginning of the new millennium there can be determined a clear tendency for the population's decline (*see Figure 1*). In the last 14 years, C.A. Rosetti's number of residents has declined from 1.171 to 839 recently.

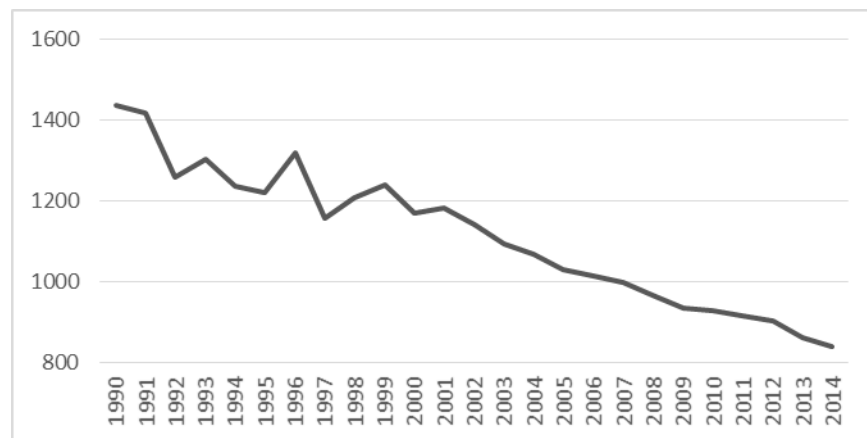


Figure IV-1: Timeline of the population's development in C.A. Rosetti.  
Source: National Institute of Statistics Romania, online 2014.

When compared to the trend of the whole Tulcea County, the negative growth of C.A. Rosetti becomes more obvious in a broader context. Until the year of 2014, the Tulcea district has lost on the whole 13% of its population registered in 1990, whereas C.A. Rosetti has experienced a demographic loss of over 40% in the same time period (*see Figure 2*).

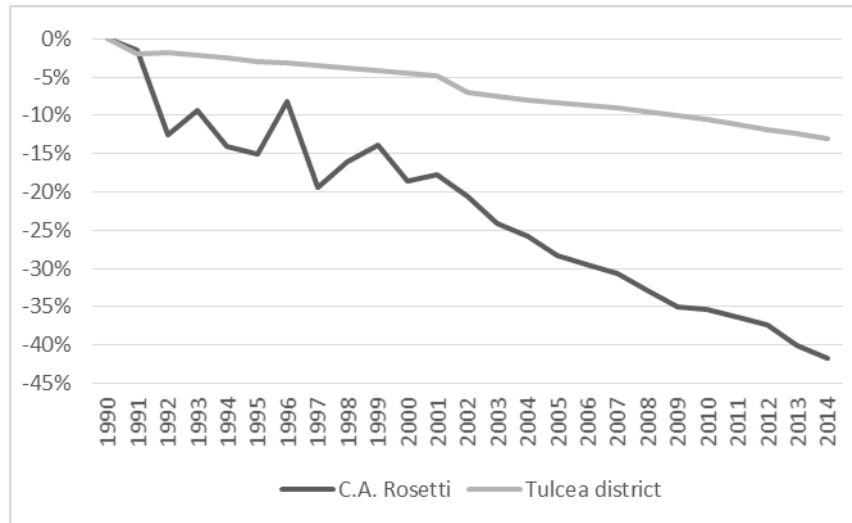


Figure IV-2: Development of C.A. Rosetti's and Tulcea's population in percentage.  
 Source: National Institute of Statistics Romania, online 2014.

Reasons for this development can be seen in the permanent emigration phenomenon taking place from the inside of the Delta's region to the urban areas like for example the city of Sulina. Another cause for the negative growth is C.A. Rosetti's decreasing birth rate, which was about 12‰ in 2002 (cf. Danube Delta Institute 2006: 120). The reduction of the number of young people and the consequently decreasing number of marriages can be drawn responsible for this. But there are also forms of temporary immigration happening, registered especially during the summer time. This is the case concerning summer houses that are frequented solely in the warmer season due to the difficulties in winter time. These summer houses are usually located in farming areas and banks of canals and streams. It is further on not a surprising fact that the death rate values exceed the national Romanian average in the hard accessible villages of C.A. Rosetti. There is hardly any medical assistant nor sanitation available. This can be mentioned as further cause for the decline in population. (cf. *ibid*)



Figure IV-3: The cemetery of Periprava.  
 Source: Gugerell 2014.

## Spatial Distribution

Official data of the analyzed community gathered in 2002 is showing that of all five settlements Letea is the one comprising most of C.A. Rosetti's inhabitants, to be exactly 34%. The next bigger localities are Periprava with 26,46% and C.A. Rosetti with 25,02% of the whole municipality's population. Sfiștofca and Cardon appear to be the smallest villages in the municipality with 11,96% respectively 2,29% of the official residents in the community.

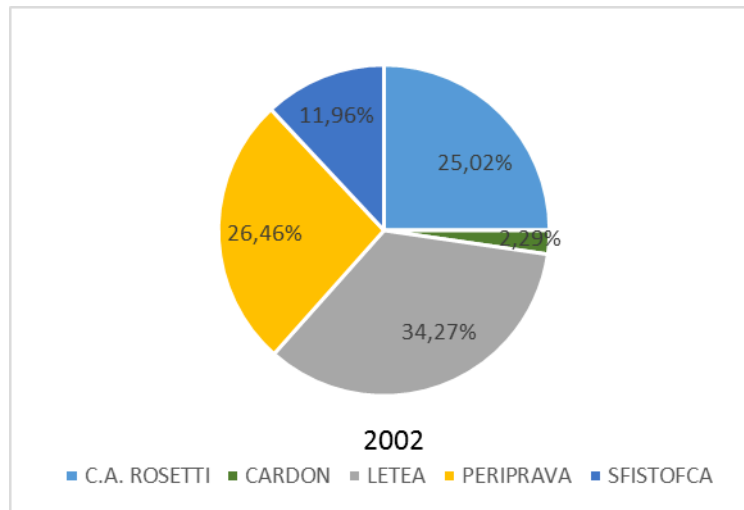


Figure IV-4: Population's spatial distribution in C.A. Rosetti.  
Source: National Institute of Statistics Romania, online 2014.

Despite the fact that there are official numbers, governmental expertise is showing other figures. It is estimated that of the 141 people on paper in Sfiștofca, only around 60 are regularly living there. This could be seen as an example for the gap between official data and the real situation in demographic issues. (cf. Interview Hancerenco 2014) (see *Chapter "History of the Region"*).

## Demographic structure

Concerning the allocation between different gender, data is showing that there are living more men than women in the area of C.A. Rosetti: 55,30% are male, 44,70% female. In absolute terms 375 women are opposing 464 men in the year of 2014 (see *Figure 5*).

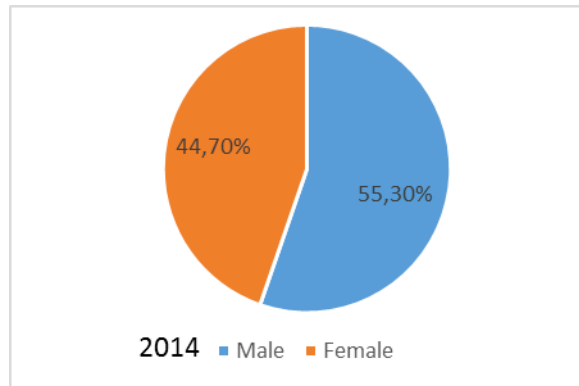


Figure IV-5: Gender-related structure of C.A. Rosetti's population.  
Source: National Institute of Statistics Romania, online 2014.

The analysis further reveals that in the year of 2014 the male population's share is on the whole bigger in the age group 0-29 than the women's, 157 to 108. This is also the case in the summarized age group of 30-59, where concrete data for man is 212 whereas for women 131. Only the senior age group, from 60 years on, is dominated by women with 136 females to 95 men (see Figure 6). It seems that there is a little void in the age group 20-29 in the women's range. A cause for this might be the women's emigration due to financial or educational reasons. Maybe also the harsh natural conditions especially for women in the area could be drawn responsible.

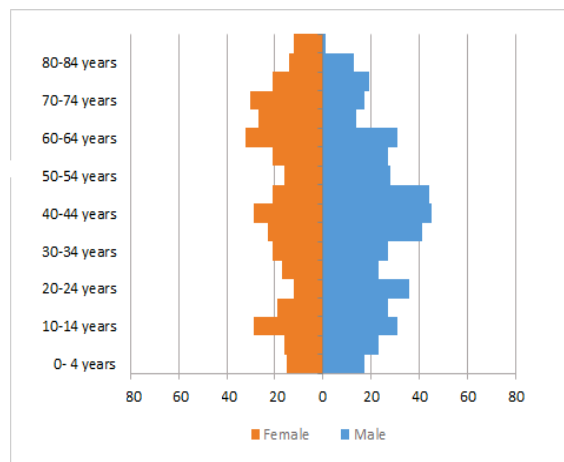


Figure IV-6: C.A. Rosetti's population by gender and age groups 2014.  
Source: National Institute of Statistics Romania, online 2014.

The age pyramid of 1993 shows a different picture. Here is a gap visible between the age group 20-24 and 40-44.

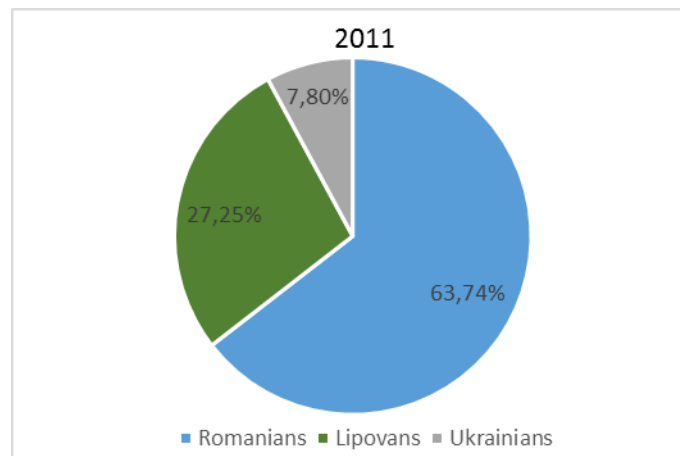


Figure IV-7: Rosetti's population by gender and age groups 1993.

Source: National Institute of Statistics Romania, online 2014.

## Ethnicity

Despite its low population density the Danube Delta is home to many different ethnic groups. In C.A. Rosetti the population consists of around 64% Romanians, 27% Lipovans and nearly 9% Ukrainians (see Figure 8).



Year	All	Romanians	Lipovans	Ukrainians
2011	910	580	248	71

Figure IV-8: C.A. Rosetti's population by ethnicity.

Source: National Institute of Statistics Romania, online 2014.

According to the Danube Delta National Institute, the population in C.A. Rosetti can be considered purely Romanian, whereas in Sfiștofca the Lipovans are predominant with a share of 96,3%. In Letea the Lipovans also form a big part of the local population: 37,7%. In general their coexistence is described as peacefully and solidary. There could be determined no concrete conflicts between this nationalities, in spite of the recent military tensions between Ukrainia and Russia. However, the Romanianization tendencies are obvious. Over the last years there even had been closed a Lipovan school, leaving one last Lipovan school in Periprava. The roles of the ethnic groups are manifested: Romanians constitute with over 2/3 the main share of the population whereas Lipovans and Ukrainians are the minorities. It might be a question of time if they will remain the future development since marriages are decreasing and the birth rate is on decline. Nevertheless not only C.A. Rosetti, but the whole Danube Delta is an area where different ethnics yet can live together and share the locality since over hundreds of years in peace (cf. Danube Delta National Institute 2006: 120).

## Schools

As stated by the National Institute of Statistics, there is one Romanian education unit in the locality of C.A. Rosetti which comprises primary and secondary education as well as special education (2014 online). Additionally, there is a Lipovan primary school in Periprava according to the mayor Hancerenco (cf. Interview 2014). There are approximately 110 potential school kids living in the whole area but in fact social issues often prevent them from visiting school. Specific reasons for the absence in many cases are the parent's unawareness for the importance of education resulting from alcoholism and its consequences or from financial issues. To latter count the needed support for the work on the domestic farms as well as funding issues. (cf. Interview Hancerenco 2014) However, the school kids transport system is well organized. There is at least one bus picking up the kids from Periprava, Letea and Sfiștofca and returning them home again on a daily basis.

## Community associations

Concerning associations of the local community, there could be observed the local chess club and a women's choral society, both operating in Sfiștofca. The choral society occasionally is touring and giving concerts in other cities and villages every now and then. It seems that it represents a social framework particularly for elder women, who want to preserve the traditional Russian-lipovanian and Romanian folksongs in the community. The chess club on the other hand is masculinely dominated



Figure IV-9: The women's singing association of Sfiștofca.  
Source: Ludwig 2014.

and provides gathering occasions for playing the game in the community centre. There are tournaments held regularly, but it is not clear if communities from the other settlements or even external not local people are involved.

## Relevant stakeholder

The concerned stakeholder in the region of C.A. Rosetti can be generally divided into *formally* and *informally* acting. Formal stakeholders are embedded into the administrative and institutional system while operating. The following table gives an overview of the observed and investigated formal stakeholder that have an impact on C.A. Rosetti:

Formal			
Level	Stakeholder	Site	Tasks
International	European Union	Brussels (B)	Administration, legislative and executive of the European Union
	World Bank	Washington D.C. (USA)	Allocation of funds for poverty reduction
	Stockholm Environment Institute	Stockholm/Go teborg (S)	Conducting research for stakeholder i.e. the World Bank for the Danube Delta
National	Romanian Government	Bucharest	Administration, legislative and executive in Romania
	National Administration "Romanian Waters"	Tulcea	Subordination of Waters Management System Tulcea
	Danube Delta National Institute of Research and Development	Tulcea	Research in protected area, coordination of Tulcea Forestry Detour relevant for C.A. Rosetti
	Forest National Department Romsilva	Tulcea	Forest administration
	WWF Romania	Bucharest	Bringing together stakeholder for environmental protection
Regional	Tulcea County Council	Tulcea	Administration, legislative and executive in Tulcea County; Responsible for the RDP "Rural Development Project" in Tulcea (implemented by Romanian Government, funded by loan from World Bank)
	Agriculture and Rural Development Department of Tulcea County	Tulcea	Providing Data about DD for scientifically, economic, tourist purposes, involvement in "Local Activity Plan for Environment 2005"
	Waters Management System Tulcea	Tulcea	Manage underground and surface water resources, monitoring
	County Frontier Police Inspectorate C.F.P.I Tulcea	Tulcea	Surveying the fluvial and maritime frontier, also medicine transport or (water-)rescue activities
	Tulcea Health Department	Tulcea	Implementation of national health programs on local level
	Danube Delta Biosphere Reserve Authority	Tulcea	Managing of natural heritage, monitoring of environmental influences, coordination of Ecological Guard and Control Service, transfer of data to Bird Life International,

			managing National Environment Guard
	Romanian Shipping Authority	Tulcea/Sulina	Supervision of shipping navigation
Local	Local Council of C.A. Rosetti	C.A. Rosetti	Administration of economic, social, ecological issues
	County Frontier Police C.F.P.I	Periprava	Surveying the fluvial frontier Romania-Ukraine

Table 1: Own figure. Sources: Danube Delta National Institute 2006: 13ff. WWF Romania 2014 online.

In contrast, informal stakeholder are operating more independently. The following represent the found amount of them with relevance for C.A. Rosetti:

Informal			
Level	Stakeholder	Site	Tasks
International	Rewilding Europe	Nijmegen (NL)	Managing the “rewilding” of Europe’s natural sites
National	Association of Ecotourism in Romania	Brasov	Managing promotion and eco-tourism certificates, connecting different stakeholder
Regional	Salvati Delta	Bucharest	Initiation of activities for the protection of the Danube Delta
	NGO “Vox Deltae”	Crisan	Conducting activities in the Danube Delta for sustainability (gathering of interested people, education through World Learning course etc.)
Local	Chess Association	Sfiştofca	Organization of recreational chess sets and tournaments
	Women’s Singing Association	Sfiştofca	Preservation of Russian-lipovan and Romanian folk-songs
	Artist’s Association	Sfiştofca/Buc harest	?

Table 2: Own figure. Association of Ecotourism in Romania 2014 online. Danube Delta National Institute 2006: 13ff. Rewilding Europe 2014 online. Salvati Delta 2014 online.

## Conclusion

The diminishing population is a major challenge for the whole region of the Danube Delta. C.A. Rosetti is as well facing this problem. On the other hand the still existing schools in the localities of C.A. Rosetti and Periprava shows that there is a chance on behalf of the kids’ education and perhaps the future settlement of new families. With the establishment of new homes and the inclusion of young families in the community the shrinking tendencies could be offset, but maybe not fully avoided. If this is required, the social offer for young(er) people, particularly women and families, has to catch up and be prevented from the elder’s domination, for example



in terms of sportive associations or cultural events. Further on, the lacking sanitary system and medicinal offer can be a major obstacle for the municipality's development, as it is a basic need for reaching a high age. There could be developed a mobile medicinal service, like for example for dental problems, which could be shared with the whole eastern Danube Delta region. Finally another problem to face might be the declining minorities due to Romanianization – they have to be actively protected and supported in their traditions and culture.

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## Images

Figure 1: Timeline of the population's development in C.A. Rosetti. Source: National Institute of Statistics Romania, online 2014.

Figure 2: Development of C.A. Rosetti's and Tulcea's population in percentage. Source: National Institute of Statistics Romania, online 2014.

Figure 3: The cemetery of Periprava. Source: Gugerell 2014.

Figure 4: Population's spatial distribution in C.A. Rosetti. Source: National Institute of Statistics Romania, online 2014.

Figure 5: Gender-related structure of C.A. Rosetti's population. Source: National Institute of Statistics Romania, online 2014.

Figure 6: C.A. Rosetti's population by gender and age groups 2014. Source: National Institute of Statistics Romania, online 2014.

Figure 7: Rosetti's population by gender and age groups 1993. Source: National Institute of Statistics Romania, online 2014.

Figure 8: C.A. Rosetti's population by ethnicity. Source: National Institute of Statistics Romania, online 2014.

Figure 9: The women's singing association of Sfiștofca. Source: Ludwig 2014.

## V. Structure of the Danube delta economy

By Gerold Ludwig

The main sectors of economic in the Danube delta are fishing, agriculture, reed harvesting and tourism. Overall the region is marked with an increasing number of registered enterprises in the economic sectors of aquaculture and commerce (vgl. EUROPEAN COMMISSION 2010:13). In the year 2008 87% of the Danube delta's population who are capable of work were employed, compared to 70,3% in the whole European union (cf. Eurostat, online and EUROPEAN COMMISSION 2010:23).

29% of the working people are working in the agriculture and forestry sector, 15,5% in the industry, trade, construction and services, 15,4% in tourism, transport and communications, 15,3% of the working people are working in the fishing sector (fishing, aquaculture and processing industry), 13,5% public administration, 5,7% in education and culture, and 1,9% in health and 3,6% in other sectors (cf. EUROPEAN COMMISSION 2010:18). These employed people are working mainly in 160 firms (commerce 67 firms, hotels and other facilities 61 firms, 16 restaurants, agriculture 10 firms and fishing 6 firms). Of these 160 companies are 84% located in the tertiary sector (cf. EUROPEAN COMMISSION 2010:13).

Approximately 30% of these people are working in Sulina or Crişan and make these two cities the most important economic centers of the delta (cf. EUROPEAN COMMISSION 2010:16). Sulina had an even more important role in former times. It was a hub for goods which came by sea but it lost this role more and more. Nowadays there are new canals through the delta and the means of transport changed. Due to the fall of the city, the surrounding villages lose inhabitants and importance for economy (cf. BRANDNER 2007). These developments seem to just affect Sulina and its surroundings. Overall the numbers of companies increased over the last 5 years by 25%. (cf. EUROPEAN COMMISSION 2010:13). Thanks to this economic upturn Pardina, as the only location, was able increase their total number of inhabitants. They had such an intensive development of their agriculture that they attract people from other, poorer areas in Romania or within the delta, for instance Sulina. (cf. EUROPEAN COMMISSION 2010:7)

### **Fishing**

Fishing is one of the main pillars of the economy in the Danube delta. During our visit in the community of C.A. Rosetti we heard often that it got really complicated to get allowance to fish after the delta became a biosphere reserve. They also mentioned that they are not allowed to catch a lot of fish. Only with an industrial licence, which is quite expensive, they would be permitted to catch more.

According to the European Commission there are just five kind of licences. These are permits for family fishing, boats and ships, commercial fishing, professional fishermen and one for fishermen associations and research institutes.

People who are owner of the family permit are allowed to catch everyday 3 kg of fish by using 2 rods, 2 grillnets or 2 pots. These rules were introduced to "secure a living standard for the

inhabitant” and they are only awarded for the local population. With the sport fishing permit for example, people are allowed to catch an amount of fish up to 5 kg but they are not allowed to use other tools than rods (cf. EUROPEAN COMMISSION 13f).

This rules were changed several times and are more relaxed now. When the Danube delta biosphere reserve started, it was quite impossible to fish but after a few changes in the years 2001, 2008 and 2010 people were allowed to fish again. Over the last years the demand for family permits fell from 2134 in the year 2006 to 839 in 2009. On the other hand the demand for the other permits went up. The reason for that was a change of the association which issued the permits. In former times the Danube Delta Biosphere Reserve (DDBRA) decided to reduce the numbers of permits. Since 2005 their follower, the National Authority for Fisheries and Aquaculture (NAFA), issued an unlimited amount of permits (cf. Graphic 9, EUROPEAN COMMISSION 2010:15).

At the moment it seems like the fishing for business is on a high level, 40% (6% of the employed people) of the inhabitants of the Danube delta are working as fisher or in a fishing related sector but overall it is on a very low rate (cf. EUROPEAN COMMISSION 2010:13). These people are just the normal employed people, actually there is no data available how many self-employed fishermen are working in this region. In 1921 approximately 350 tons of black roe were harvested and till 2000 the rate dropped to 9 tons in Romania. Fishing in international and internal waters dropped in a high percentage as well (cf. TUDORANCEA 2006:401f).

The fishing efficiency in the Danube delta is also linked to a geographical location. The main part of fishing is in the southern part of the delta because there the Danube River is slow and deep. In the northern region a lot of anadromous fishes left the area because of several interventions, like river regularization or stone deposits along the banks, close to Sulina. (cf. TUDORANCEA 2006:401). Another disadvantage is a lack of valuable, in an economic point of view, fish species and that caused a “qualitative decreasing of fishing fund” (cf. STIUCA NICHERSU 2006:123).

Furthermore there are no companies in the Tulcea Trade Register Office which could manage the fish processing (cf. EUROPEAN COMMISSION 13).

## **Agriculture**

Like fishing, agricultural production is one of the main sources of income for local people.

In the year 2010 there are 20% more agricultural companies than 5 years before. They cover nearly 13% of the dry area which is about 61,500ha. This amount is about twice as high as in 1950 (cf. TUDORANCEA 2006:402 and EUROPEAN COMMISSION 2010:18). Unfortunately the natural conditions for agriculture in the Danube delta are not very good and they limit the potential of considerable growth. Only 15% of the area could be used and the soil is quite sandy and salty. There is no bigger livestock farm for intensive breeding even if the local people would prefer livestock but just very small scale. Main locations for them are in the community of C.A. Rosetti and in Caraorman (cf. EUROPEAN COMMISSION 2010:18-23).

## **Reed**

Reed Harvesting in the floodplain started in the year 1907/1908. Between 1930 and 1940 reed was exported mainly to England as a raw material for the paper industry. After the Second World War they started to build flow regulations for fishing and started reed harvesting on a big scale. Nicolae Ceaușescu tried to breed a special reed with a higher percentage of cellulose. The overall harvest was at 300,000 t in the winter 1956/1957, later went down to 85,000 t (1960/61), and again up to 280,000 t in 1964/65. Satellite pictures show us that there are 330,000 t reed on 66,000 ha today. Because of bad infrastructure the reed harvest is about 70,000 t every year. Many areas are not accessible anymore and so it is not possible to harvest reed there. There are regions where no harvest took place during the last 10 years (cf. TUDORANCEA 2006:403).

Inside the Danube delta reed is mainly used as fire material and for building (cf. DDBRA Online)

## **Tourism**

According to our observations the income through tourism is very unequally spread in the region. The region of Sulina and the community of C.A. Rosetti are not frequently visited by tourists. There is just one bigger hotel which is operated by a Frenchman. But in Crișan, which about 20km away from Sulina, are a lot more tourists. Overall the capacity of beds for touristic purposes was about 2,750 (in the whole Danube delta) in the year 2009. In the same year 71,550 people visited the Danube delta with 125,891 overnights in total. That is 10% lower than 2008 but it is not really significant because it is just from one to another year (cf. EUROPEAN COMMISSION 2010:18).

A main problem which prevent the rise of numbers of tourists is that some villages still suffer from a massive lack of infrastructure. They do not have water supply or sewage systems.

## **Conclusion**

As mentioned in the analysis from the economy is quite ambivalent, depending on the parts of the Danube delta. Overall the economy is based on the pillars of tourism, reed harvest, fishing and tourism. All of them have more potential which is not really used. In the far Northeast the tourism is underdeveloped, maybe due to a lack of infrastructure which means that there is no water supply or sewage systems. There are a lot of areas covered with unused reed and also the sectors of fishing industry and agriculture are are very old fashioned and small. Only in one part, the village of Pardina, has a rising number of inhabitant and it happens because of a growing and stable economy. So if the Danube delta is using their potentials they could have a stronger economic growth.

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## VI. Mobility and Infrastructure

By Ina Paschinger

This chapter aims to give an overview to the actual standards of infrastructure facilities and mobility systems due the research field of the municipality C.A. Rosetti and the Danube Delta.

### Road conditions due the Danube-Delta

Due the Danube delta road conditions are different from the remaining landscape of Rumania. The official traffic ways end at the beginning of the Danube delta.

While in the rest of the country streets are paved with asphalt, roads through the delta are tracks without supported underground and pavement. Although the roads are simple, the circumstance that there are still differences in their conditions can't be denied.

Within the region of C.A. Rosetti the villages are located in an area of ~35 km diameter. As a result of the poor state of the streets and the arrangeable transport vehicles in the area, travelling times increase.

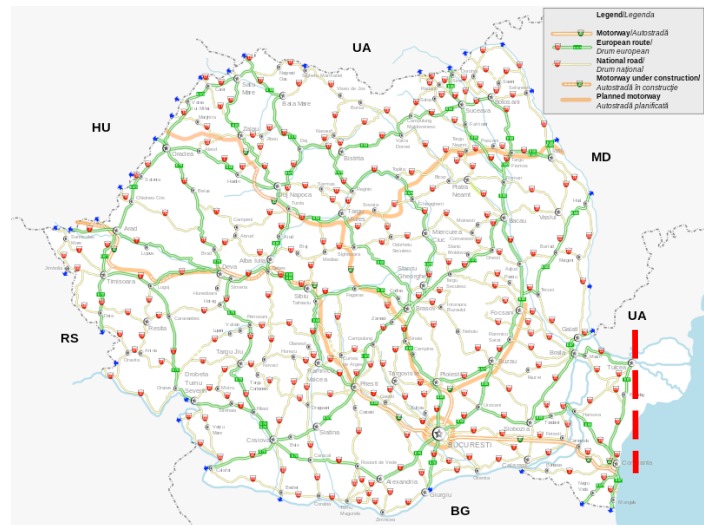


Image 3: Official Street network of Rumania – ending at the doorway to the Danube-Delta, Wikipedia



Image 2: Street in Letea along the channel, Own Image



Image 1: Street in Sfstofca along the channel, Own Image

Start	Mark	Distance	Time (average temp 50 km/h)
<b>Letea</b>	Sfiștofca	7,30	~ 15 min
	Periprava	17,70	~ 58 min
	C.A. Rosetti	4,40	~ 7 min
<b>Sfiștofca</b>	Periprava	17,70	~ 1 h 2 min
	C.A. Rosetti	3,90	~ 11 min
<b>Periprava</b>	C.A. Rosetti	13,80	~ 52 min
<b>Sulina</b>	C.A. Rosetti	19,40	~ 26 min
	Sfiștofca	22,20	~ 33 min
	Letea	22,40	~ 29 min
	Periprava	32,70	~ 1 h 16 min

Tab.1: Average travelling time through the municipality of C.A. Rosetti (tempo 50 km/h [e.g. car]), Own illustration

## Waterways

Supplying the delta due waterways goes back far in history. In ancient times, for example, the port city of Sulina was settled by sea-travelling people and became one of the most important commercial cities in the Black Sea region. In the 20th century the seat of the Danube commission (until the year 1938) used to be in Sulina, recently the importance of international trade city was reduced as a result of expansion to other trade routes. Currently, main economic revenue is recorded due summer season.

Waterways and side channels were once major transport routes, which needed to be maintained regularly to navigability. Until the 1960s political prisoners have performed the maintenance (bearing Periprava / Ultima Frontiera Hotel). Later this task was taken over by agricultural companies, which mostly do not exist anymore. This is a reason for the low attraction and limited potential uses of waterways.

REGULAR FERRY SCHEDULE:		
Route	Departure Days	Departure Time
<b>Tulcea - Periprava</b>	Fri.	1:30 pm
<b>Tulcea - Sulina</b>	Mon. Wed. Fri.	1:30 pm
<b>Tulcea - Sf. Gheorghe</b>	Wed.	1:30 pm
<b>Periprava - Tulcea</b>	Sun.	6:00 am
<b>Sulina - Tulcea</b>	Tue. Thurs. Sun.	7:00 am
<b>Sf. Gheorghe - Tulcea</b>	Thurs.	7:00 am

Tab.2: Ferry Schedule (www.romaniaandmoldova.com)

The harbor city Sulina and the village Periprava are the only places with direct connection to the main town Tulcea. The only way to get there is to take one of the daily ferries. These two places have a special status as “key” to the rest of the country, main transport routes are the waterways through the Delta. The table displays the current schedule of the local ferries. The traffic density of the ferries is also one reason, among others why inhabitants of the Danube Delta are leaving the region.

The municipality C. A. Rosetti has a traffic-island status. All cars and other materials are embarked via Periprava and Sulina. The main functions of these harbor cities consist in general supply of the local people in the delta with nourishments, furniture (kitchen, sofas, etc.) and construction materials. (Movement of goods is charged per kilogram!).



Pic. 5: Movement of goods from Tulcea to Sulina (own photograph)

### **Water supply and environmental policy**

At the lower Danube most of the cities take the drinking water out of the Danube, for example even the citizens of Tulcea receive the water from the river. There are water treatment plants which need to be extended. Liquid waste processing systems and purification plants are very rare, the villages and cities located in the Danube delta lead their wastewater either directly into the river or into the soil. This is also a reason for the mainly insufficient status of the water quality along the Sulina canal. Most villages within the municipality of C.A. Rosetti and the Danube delta aren't connected to any water supplying systems. The locals receive water by collecting rainwater and from their own wells. Recently the village residents in the area around C.A. Rosetti are confronted with the circumstance of their groundwater getting salty. This may have different reasons, but the problem is getting more serious.

Another particular item of environmental development is the circumstance of waste management. Through the Delta region there were built waste disposals, but it seems that the litter problem is not solved at all. Most of the scattered trash, in the fields and along the streets, is plastic material. Accordingly to this fact the public's spirit for ecologic material flow should be enhanced.

Most investments in the next years will probably be needed in the sector of environmental development.

### **Energy supply**

The local residents of the research field C.A Rosetti are provided with electricity by the established power supply system leading from Tulcea through Sulina into the region. According to statements of local inhabitants from Sfiștofca and C.A. Rosetti the standard of the supplying system is sufficiently dimensioned to their issues. Failures emerge in case of storms or sometimes in rough winter seasons, those disturbances used to be solved within 2 – 3 hours.



To tap new resources, solar or on-shore wind power would be alternative ways to enhance the independence of the Danube Delta and to accommodate the Delta to European standards.

### **Social infrastructure – provision of medical care**

The standard of medical supply within the Danube delta is very poor; the next hospital is located in Tulcea, which is just reachable by boat or by helicopter. The transport to medical institutes is barely affordable, as a fact of this circumstance locals don't receive adequate treatments (state of the modern medicine).

To improve the situation of health care, the establishment of mobile medical services may be useful. In order to implement this project, a thorough investigation should be carried out. If there is a school doctor in the community whose services could perhaps be extended to the rest of the population. Perhaps we might suggest a mobile service for routine medical examinations (which it perhaps as a school doctor already exists and can be extended to senior citizens).

### **Conclusion**

The conditions in the Danube Delta differ in almost all areas of supply from the remaining country. These circumstances are usually of historical and geographical origin.

The biggest challenges for spatial planning will be to strengthen and align the current standards in infrastructure and mobility facilities to those of the European Union. The legal situation to obtain grants and funding for (re-)building roads or water systems is not optimal for the local population; it often lacks on information how grant applications are provided. Another problem is the plight of exploring the status of ownership. Although the end of communist system in 1989 about 30 years ago, many certificates of property rights were not given to the owners or got lost.

An official mapping in the sense of a basic book could remedy to facilitate access to funding possibilities.

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## Images

<http://upload.wikimedia.org/wikipedia/commons/thumb/3/37/Romania-drumuri.svg/800px-Romania-drumuri.svg.png>  
Picture 1 - Road System of Rumania

Street in Letea and Sfiștofca ; Picture 2 & 3 (own photographs)

<http://romaniaandmoldova.com/rmwordpress/wp-content/uploads/2009/11/ndobrogearegionmap.gif> - Picture 4 - Main routes into the Danube delta

Picture 5: Movement of goods from Tulcea to Sulina (own photographs)

## VII. Asset Nature

By Leonhard Schilling

### Landscape in Progress

The shape of the Danube Delta is the result of forces affecting the surface of the earth for thousands (in the Case of Danube Delta for about 5.000 to 7.000 years) (Știucă et. al, 2006: 46) of years. One could say that every landscape has its own dynamics and thus is permanently being reshaped so it would not be anything special. The Delta of the Danube River is an area where those changes caused by natural processes can be described as particularly obvious and determining.

### Erosion and Sedimentation

*Primarily it is an interaction between river and sea influencing the look of the landscape and the life of man and nature. This game is played in various forms. The River brings a plenty of sediment in form of silt and sands building large fluvial sandbanks in the zone where the Danube divides into the three Delta-Branches, Chilia, Sulina, Sfântu Gheorge. Further all along the banks of the three channels and in the area of the mouth alluvia cause a growing of place.*

*As a second factor the Black Sea plays an important role. Strong maritime currents together with winds and waves effect a sedimentation of material. Subsequently, the coastal landscape is influenced by emerging sand banks. (Ebert, S. et al., 2007, 10f) The energy of the Danube River and the Black Sea constantly appeal on the shape of the delta landscape. The millions tons of material being eroded and accumulated by the diverse forces lead to an average annual growth of about 40m and also locally to an impressing shrinkage of the coast line. (MRDT 2010, 7) (ESA, online)*

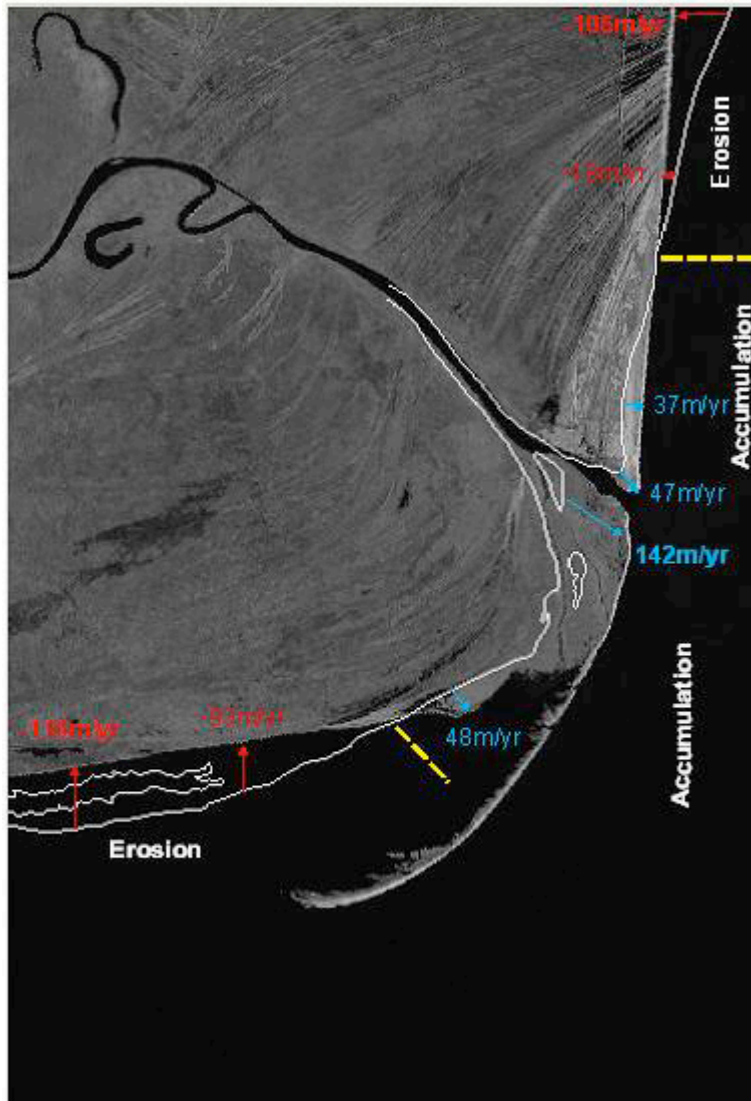


Abbildung 3: Dynamics at the mouth of the Sf. Gheorge-Branch of the Danube

Floods have an impact on landscape. The runoff regime of the Danube river basin respectively the weather situation determines the water level and finally the flooding of the numerous lakes behind the riverbanks. Floods can occur in a different periodicity – once in a century, annually etc. and can also last for a different length of time - some last days long, some only for a few hours. In the past the main Branches and Channels were embanked and dykes were established for traffic, economic and security reasons. Until these interventions the flooded area was about 95% of the whole delta. Nowadays, due to human actions only about half of this amount is flooded.

## Salinisation

Due to the proximity of the Black Sea an essential factor concerning the growth of vegetation is Salt. The amount of salt concentrated in the soil provides special conditions for certain vegetation. When the precipitation (Niederschlag) is lower than evaporation (Verdunstung) the concentration of salts in the groundwater increases in especially in the upper levels of the soil. On the other hand Salt gets carried away through the flooding when water enters the areas behind the river banks. The rhythmic inflow and outflow in those hinterlands regularly influencing the concentration of salts and nutrients can be seen as “breathing”. (Ebert, S. et al., 2007: 11).

The effect of salinisation has an important impact on the natural vegetation - further the natural landscape – but has a significant influence on human activities in agriculture too. In the Village of C.A.Rosetti people are concerned about those processes. It is getting dryer (the annual precipitation is already low; see climate) and in order to this the plants can't stand the higher concentration of Salt in the soil. Wine as it is grown by some people in Periprava is generally used to dry conditions as building up roots reaching deep into the ground. However, the concentration of Salt is increasing in these soil horizons and conditions are getting worse (Winegrower in Periprava, 29.9.2014).

## Vegetation

The main vegetation types are reeds, forests, wetlands (moores, swampy fields, rush marshes (Feuchtwiesen), meadows and agricultural sites. Gallery forests are characteristic for the riverbanks where conditions are not too wet because of the relatively high elevation. The tree vegetation traces the river courses across the landscape. (Ebert, S. et al., 2007: 12) But also the marine levees (Naturdeiche durch die See geschaffen) are potential habitats of forest development. For instance in the area of C.A.Rosetti the Letea Forest has a marine levee as its basis.

Outstanding for the Daube Delta comprises the largest connected area of reed. It counts about 1800 km<sup>2</sup>. Reed grows behind the riverbanks in the wetlands with its lakes and rush marshes. The soil is too wet for building up trees so reed becomes the dominant form of vegetation. It can be found as those huge reedbeds or as floating islands consisting of different aquatic plants mixed up with organic remains and soil (Ebert, S. et al., 2007: 10ff)

## Climate

The following data is not directly available for Sfiştofca. The representative survey point is Sfantu Gheorghe. The exact period of observation is not mentioned in this survey (while the survey is of 2006).

- *Sunshine*: The annual duration of Sunshine rises from east in Tulcea with 2.260 hours of sunshine to the west in Sfantu Gheorge with 2.502 of theoretically possible 4300 hours. Vienna has an average annual sunshine of 1936 hours.

- *Air temperature:* The annual average air temperature rises from east to west too with Tulcea (11.0°C) to Sulina (11.5°C). The warmest month is July (average 22°C) the coldest is January (average 0°C). The absolute maximum was on the 20<sup>th</sup> of August with 37.5°C in 1946 and the absolute minimum was on February 9<sup>th</sup>, 1929, with -25.6°C. In general the oceanic influence of the sea causes mild temperatures.
- *Precipitation:* The average precipitation in Sulina is – like in the whole Danube Delta region – low an lies at 313mm per annum. In respect to Sulina Vienna has 664mm average precipitation a year.
- *Humidity:* Because of the numerous sources of evaporation in the Delta the annual average values are around 75%. In Sulina the value of Humidity amounts 84%
- *Wind:* The predominant directions of wind is north (Sulina 18.5% of all directions) and south (Sulina 16.7%). (Știucă et. al, 2006: 101f)

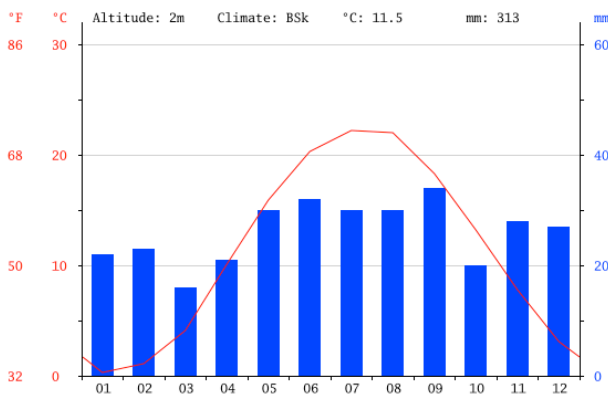


Abbildung 4: Climate Diagram Sulina

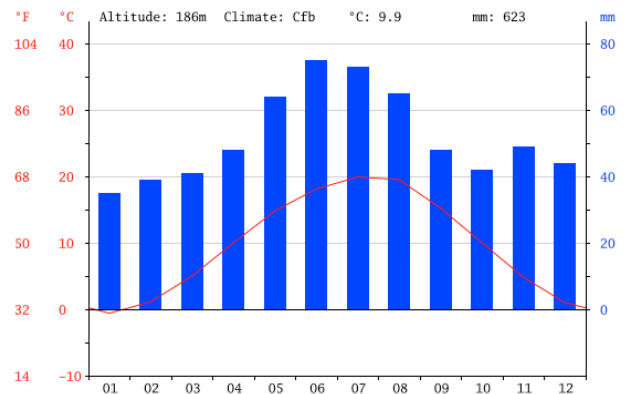


Abbildung 5: Climate Diagram Vienna

## Types of Landscape

Why all those mentioned processes, conditions and functions lead to an outstanding landscape which is an important capital to deal with for the people in the Danube Delta. To get a better overview over the landscape there will be introduced different types of landscape in the Delta based on morphology and ecosystems. The investigation concentrates on the area in and around the municipality C.A.Rosetti where the most types are represented. The main types are running waters (Fließgewässer), stagnant waters (stehende Gewässer), swampy and regularly inundated surfaces (sumpfige und regelmäßig überschwemmte Oberflächen), and river ridges/river banks (Strombänke) barrier beaches resp. marine levees (Strandwälle bzw. Naturdeiche), cultivated areas (agriculture, forestry, fishfarming).

The *runnig waters* as ecosystem refers mainly to the three arms of the Danube (Chilia, Sulina, Sfantu Gheorge) as well as to the main and lateral channels (Haupt- und Nebenkanäle).

Particularly in the latter phyto- and zooplankton serves as food for many creatures in the waters from worms and larvae to fish like carp (Karpfen) and sturgeons (Stöhre). Pollution of these waters is a problem which leads to declining fish populations.

Meaningful for C.A.Rosetti are the Branch of Chilia and the Sulina Channel. Further channels lead to Letea (Cnalul Mageard) and Sfisfoca resp. Cardon. The latter connects the Sulina arm and the Chilia arm via a short track over the Black Sea (Golful Musura). The Chilia Channel is the youngest and longest (120km) and transports the highest amount of water (56%) and alluvia. At the mouth of the Chilia arm there is an annual growth of 40-80m through sedimentation of alluvia. The Sulina Channel was shortened in the middle of the 19<sup>th</sup> century for the reasons of shipping.

The *stagnant waters* are characterised mainly by underwater and floating flora. Known for the numerous lakes, ponds and small canals which are often silty (schlammig) the landscape of stagnant waters can be found in the western parts of the Delta. The area in the west of C.A.Rosetti with Lakes named Merhei, Matita, Babina etc. comprises a typical plants like water lilies – often near the shore of the ponds but all floating. Fauna is also very rich for example the catfish (Wels) and the pikeperch (Zander) are ones of many species living in those areas. This type of landscape occupied 31,260 ha (9,3%) in 1964 and after the draining, after some agriculture and forest facilities creation, in 1990 summed up only 25,800 ha (8%).

*Swampy and regularly inundated surfaces* occur in close connection with the latter type of territory. It often consists of the different variations of reed hence fish come here to copulate. The surrounding seems a good place for the young fish to develop. Also birds use these places to nest. Representative birds would be the pelicans, swans ducks and herons (Reiher). Mammals also live in those territories: E.g. the otter, muskrat (Bisamratte), or more and more rarely wolves. The number of bird species is reported to be 325 thereof 159 are not breeding in the delta only visiting on the journey to anywhere else on the planet.

*River ridges/river banks* are the area of willows (Weiden). Similar to most *barrier beaches resp. marine levees* the larger river banks were used for agricultural activities so the tree populations got stubbed (gerodet). At the marine banks Oak forests developed like in the first and most popular protected site of the Delta the Letea Forest situated in the area of C.A.Rosetti. Those marine levees which occupy the biggest part of C.A.Rosetti municipality area make up 8% of the Delta area while the riverbanks count 6% of the area. Rosetti is one of few areas where sand banks with marine origin can be found and it is one of the areas of stable ground for building up settlements and running activities like farming.

In the 70s of the last century the cultivation of large areas of the Delta was task of an own institution. The economic activities gained more and more importance so the vision was a productive delta. Today one can find *cultivated areas* of the past – some are still in use some are on the way back to nature. However, great changes happened and the the ecosystems suffered by the construction of large facilities for agricultural activities and fish farming. Fish farming for example led to unbalanced water ecosystems. In 1991 facilities covered about 30% of the Danube Delta surface.

(Naturefriends Internationale Map, 2009; MRDT, 2010: 20f; Ştiucă et. al, 2006: 96ff)

## **Between Use and Protection – Institutional Surrounding**

As seen in the last lines the balance between human activities and natural processing is not easy to find and to keep. The consequence of the happenings in history is a new awareness of the natural environment the actual asset of the Danube Delta. Thus many people think of an alternative way of living with nature and not against it simultaneously taking advantage of the resources it offers. Some thoughts got institutionalized respectively some institutions foster new ways of thinking.

## **Danube Delta Biosphere Reserve (DDBR)**

Belonging to the UNESCO Man and Biosphere Program which pursues a use-and-protection-approach of nature conservation the Danube Delta got a biosphere reserve in 1998. The area of the reserve also covers Ukrainian land. Seven Years before the Romanian part of the delta got declared a UNESCO World Natural Heritage. To manage all activities around protection of the DDBR the Administration of the Danube Delta Biosphere Reservation was founded in 1990. (DDBR, online)

## **Nature Friends International**

The organization declared the Danube Delta to the “landscape of the year 2007 to 2009”. In this frame NFI started many activities. Aim of these activities was to promote a compatible way of tourism in the Danube Delta. NFI carries on the thoughts of Man and the Biosphere and tries to find ways of implementation. For instance there was an education program established where local people of the delta could participate to get tourist guides. Another approach was – under steadily networking efforts - to find innovative ways of economic action in the field of reed harvesting. Concerning tourism the establishment of small pensions were pursued in another education unit. NFI also implemented education programs in schools to raise the awareness for environmental issues among the youngest Delta inhabitants. (NFI, 2009)

## **Challenges and Potentials**

The landscape of the Danube Delta is highly dynamic. That means a permanent change of shape but also a permanent change of the conditions, which people have to cope with if they want to live in this area. The impact of natural the natural force by river and sea is a determining factor in the delta. History comprised also a heavy impact of man. People tried to tame those forces transforming the delta to a productive entity promising high economic gains. In the meanwhile (25 years) minds changed and the topic of “how to make a living of man and nature – not against it”. Exploring the asset of nature – the dynamics and high biodiversity – and trying to take advantage of that capital while not harming it could be described as a (new) way of institutional consciousness!?!?



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## VIII. EU funds and their role for the Romanian Danube Delta

By Bernhard Siquans

The system of European funds contains a variety of funds and programmes. For this short overview only those will be discussed which are relevant for the regional development of the examined Romanian Danube Delta. At the moment the European Union faces the end of the programme period 2007-13 which was extended until the end of 2014 and hence equipped with more money. Due to this fact this text provides a short retrospect on the previous programme period and gives a forecast on the coming period 2014-20. Both periods are being reviewed on their relevance for the Romanian Danube Delta. Furthermore the Danube Region Strategy, which was established in 2011, is introduced very briefly.

### The objectives and funds of the programme period 2007-13

The most important EU funds in relation to regional development are the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund (CF). These funds which are categorized under the objective „economic, social and territorial cohesion“ are among the financially strongest EU Funds together with the European Agricultural Fund for Rural Development. In the programme period 2007-13 the fund consisted 349,9 billion Euros<sup>1</sup> and so claims over 35 per cent of the overall budget (cf. Europäische Kommission [a], online).

For the programme period 2007-13 the main objectives of the European regional policy were (1) convergence, (2) regional competitiveness and employment and (3) territorial cooperation. The objective *convergence* pursues the aim of supporting those member states which are least developed in the matter of competitiveness and employment. In particular this means NUTS-2 regions<sup>2</sup> which show a lower GDP per capita than 75% of the EU average (cf. Europäische Gemeinschaften 2007: 13f.). In preparation for joining the European Union Romania divided its territory into eight NUTS-2 regions. All eight of them are convergence regions and consequently are entitled to gain more (financial) support by the European Union. The money for these regions are not only provided by the ERDF and the ESF but also by the CF.

Within the scope of the objective *regional competitiveness and employment* all regions of the European Union which are not eligible by the objective *convergence* are supposed to be supported. All the money is provided by the ERDF and the ESF. Due to the fact that Romania

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1

▣ This sum was increase to 355,2 billion Euros due to the extension of the programme period for the “transition year” 2014.

2

▣ NUTS is the short form for the french term „Nomenclature des unités territoriales statistiques“ and describes the division of member states' territory into comparable spatial units. This allows a harmonisation of statistic data in the EU, the preparation of analysis and a better coordination of the European regional policy (cf. Europäische Kommission [b], online). The examined area (district Tulcea) is part of the NUTS-2 region South-East.

as a whole is eligible by the objective *convergence* this objective is irrelevant for funding (cf. *ibid.*: 18f.).

*European Territorial Cooperation (ETC)* aims to strengthen cross-border and transnational cooperation. The eligible regions are border regions (cross-border cooperation) or regions for transnational cooperation, both defined and selected by the European Union. In any case these regions already have to be eligible for one of the first two objectives. So the ETC is just an additional funding possibility. For Romania the defined cross-border regions are along the borders to Serbia and Bulgaria. For our examined area these regions are not relevant. Even though the Danube Delta crosses borders to Moldavia and Ukraine, it is not eligible in that case because neither are the neighbouring countries member states of the European Union nor are there any third country agreements. However, within the scope of transnational cooperation South-East-Europe was defined as an eligible area. Romania as a whole is part of this transnational region (cf. *ibid.*: 20ff.).

### **Results and insights of the programme period 2007-13**

In the previous period 19,2 billion Euros were scheduled under the objective *convergence* and additional 455 million Euros under the objective *European Territorial Cooperation* for Romania. The national framework plan defined five thematic priorities: (1) development of basic infrastructure in line with European standards, (2) increasing the long-term competitiveness of the Romanian economy, (3) development and more efficient use of Romania's human capital, (4) building an effective administration capacity and (5) promoting balanced territorial development (cf. European Communities 2007: 64f.).

During the programme period it was perceived that Romania struggles to achieve the named priorities because of basic requirements. In the year 2013 a strategy report of the European Commission about the cohesion policy noted, that the application for funds by Romania proceeded very slowly and that there is a high risk of losing big parts of the designated money and by that not achieving the intended aims (cf. Europäische Kommission 2013: 11). On the basis of this report some newspapers reported that Romania's amount of called funds were just 14,7% of the budgeted money. No other member state called a smaller amount of funds (cf. Handelsblatt 18.04.2013, online; Spiegel 18.04.2013, online). At the beginning of 2014 there were still two thirds of the money not called. The European commission sees the reasons especially in administrative barriers, missing knowledge and frequent change of administrative staff (cf. Gillert 2014; Puchinger 10.10.2014).

In the data base of the European Commission there is only one implemented project to be found for the examined area: "Extension and the rehabilitation of water and wastewater systems in Tulcea county". For this project 113,8 million Euros have been invested, a share of 80% funded by the European Union. 106.000 of about 200.000 people living in Tulcea county are supposed to benefit directly from improved water services (cf. Europäische Kommission [c], online). A field study of the author in September 2014 in the commune C.A. Rosetti showed that until now there are still whole communes (each consisting of several villages) without canalisation and running water. Villagers told about projects where water pipes have been started to get installed but the water system was never finished.

Beside this project funded by the Regional Development Fund there have been some touristic projects which were financially supported by the European Union like the Resorts Ultima Frontiera Periprava and Puflene in Murighiol (cf. Ministry of Communications and Information Society, online).

### **The EU programme period 2014-20 and its importance for the Danube Delta**

The new multiannual financial framework for the period 2014-20 is the first one which provides less money than the overall budget of the previous period. The overall budget for 2007-13 provided about 994,1 billions Euros. In comparison the new overall budget for 2014-20 provides about 960,0 billion Euros which is about 3,4% less than in the previous period. The (unchanged) pillar „cohesion policy“ is budgeted with 325,1 billion Euros and hence 8,5% less than in the previous period (2007-13: 355,2 billion Euros) (cf. Europäische Kommission [d], online).

In order to work on a common base there are partnership agreements made between the European Union and its member states. In these documents the member states describe their main aims and how they plan to fulfill them. The Danube Delta seems to have an important role in the new partnership agreement between Romania and the European Union. It is stated that “the wetlands of the Danube Delta support only a narrow economy and a sparse population” and the main characteristics of these less developed regions are “low levels of GDP per capita, reduced share in the national GDP, unemployment, limited transport infrastructure, relative lack of opportunities” (Ministerul Fondurilor Europene 2014: 3). In conclusion of this small analysis one of the main objectives for rural areas like the Danube Delta is to maintain the population within these areas (cf. Ibid.: 425). As one of the alterations in the period 2014-20 Integrated Territorial Investments (ITI) is introduced. The aim of ITI is to implement strategies such as the Europe 2020 Strategy etc. into territorial needs of the member states. Thus member states gain the possibility to draw on funding from different priority axes of multiple Operational Programmes. The European commission lists three key elements of ITI: (1) a designated territory and an integrated territorial development strategy, (2) a package of actions to be implemented and (3) governance arrangements to manage the ITI (cf. European Commission [e], online).

In the partnership agreement Romania points out that it wants to establish the ITI instrument with priority in the Danube Delta Biosphere Reserve. For this task an Inter-ministerial working group has been established where all relevant stakeholders from different levels are involved. Romania collaborates with the World Bank to establish the Danube Delta Integrated Sustainable Development Strategy (cf. Ministerul Fondurilor Europene 2014: 430).

In a first diagnostic report the following main challenges for the development of the Danube Delta were identified:

- Sustainable economic development requires access to markets, infrastructure, a workforce and some scale economies, all rather constrained in the Danube Delta area
- Meeting contemporary nature-based tourism demand joint destination management, developing the attraction portfolio of the region, and investing in visitor infrastructure

- The commercial fishery is currently important for employment, but recreational fishing has good development potential
- Agriculture is expected to remain the main occupation and income generating activity for the rural population in the Danube Delta area
- Poor accessibility has posed significant challenges to improving the living standards of residents in the core Delta, both for health and education as well as for basic public services
- Environmental protection underpins livelihoods and economic development opportunities, especially fisheries and nature-based tourism
- Biodiversity is largely maintained by the current protection efforts but ecological systems show decline
- The institutional structure for managing the Danube Delta Biosphere Reserve territory is complex and insufficiently coordinated which might hinder conservation efforts.

(Ministerul Fondurilor Europene 2014: 430f.)

It seems that Romania wants to put a focus on the Danube Delta by implementing the new instrument ITI for the period 2014-2020. As the new period has not started yet it remains to be seen how this efforts will work out and how the programme faces the named challenges. At least it has to be honoured that Romania starts to tackle the situation in the Danube Delta where, so far, people feel left out from the promised improvements since Romania joined the European Union.

**Illustration of a possible implementation arrangement**

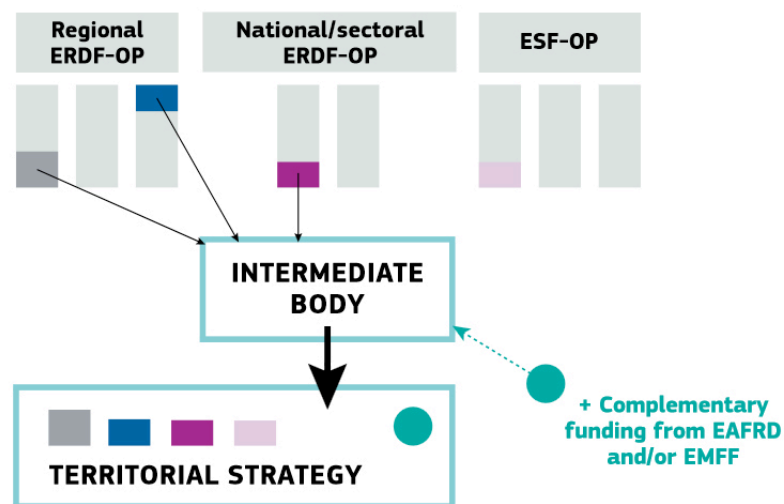


Figure VIII-10: ITI - Illustration of a possible implementation arrangement (© European Commission).

## The Danube Region Strategy and its relevance for the Danube Delta

The Danube Region Strategy (EUDRS) was established 2011 as the second macro-regional strategy after the European Strategy for the Baltic Sea Region. From the well in the black forest to the black sea the strategy includes 14 countries and 115 million people living in this area. The overarching goal is a better coordination between all important stakeholders in the region and the creation of synergistic effects. In order to achieve these aims the EUDRS does not create new funds or structures but tries to use existing ones more effective through more collaboration. The EUDRS is structured in four pillars with eleven priority areas. The four pillars are: (1) connect the region, (2) protecting the environment, (3) strengthening the region and (4) building prosperity (cf. Austrian Conference on Spatial Planning, online).

There are no additional funds available for this strategy but as mentioned earlier there is no shortage of money. Rather than a lack of money, Dr. Kurt Puchinger – the Viennese coordinator for the EUDRS – points out that the task is how to get hold of the money. So another aim of the EUDRS is to maximize the calls for funds as well as remember the member states of their responsibilities regarding the European money and hence the European community (cf. Puchinger 10.10.2014).

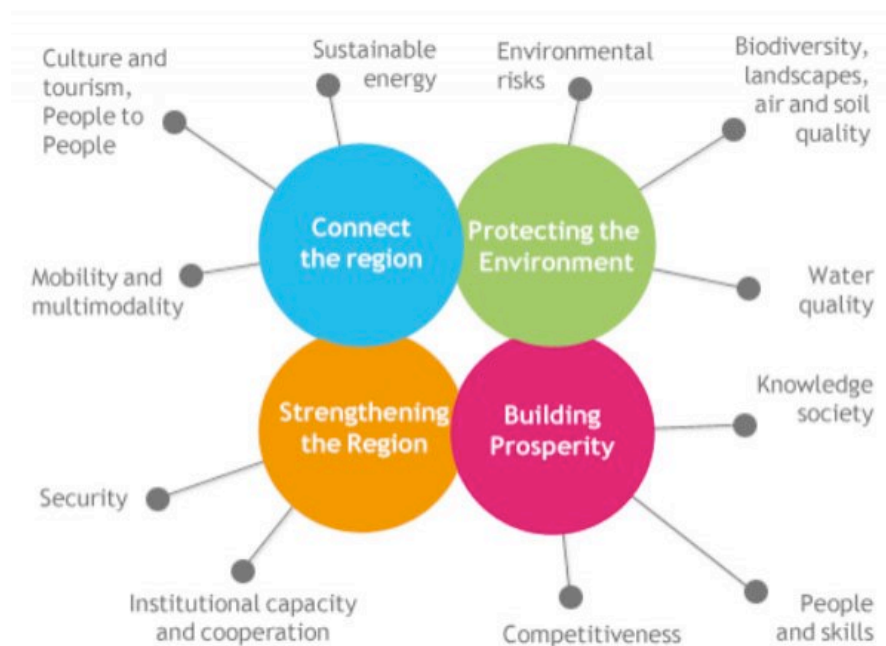


Figure VIII-11: The four priorities of the Danube Region Strategy (© Danube Region Strategy).

As mentioned before the lack of calls for funds is a huge issue in the Danube Delta as well as in whole Romania. The EUDRS' 14 member states include states like Germany and Austria, which are on top in matters of calling their assigned EU money. On the other side there are states like Romania, which is on the very bottom of this ranking. If the EUDRS manages to improve this situation by enhancing the communication and collaboration between these states the EUDRS could make a huge difference for Romania as well as for the Danube Delta itself.

The success, of course, has to be measured by looking at the amount of Romania's called EU money next programme period and in particular by looking at implemented projects in the Danube Delta.

## Conclusion

Romania is a member of the European Union since 2007, the start of the former programme period. As mentioned above this period did not have a big impact for the Danube Delta. Most of the designated funds were not called and in the whole Tulcea region just one project got EU funds. The reasons for that are seen in a lack of knowledge and awareness for EU funds, bureaucratic barriers and an insufficient administration.

For the coming programme period the new established instrument ITI (Integrated Territorial Investments) has a big potential for the Danube Delta region. Romania chose the Danube Delta as the territory for the ITI. Due to that face there is a hope that much more money and as a result much more projects are getting implemented in the period 2014-20. The Danube Region Strategy could also contribute to this development by supporting the necessary coordination and cooperation between the relevant member states. But until the new period has its operative start next year we have to remain curious.

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## IX. Potentials & Risks

In conclusion of the previously analyzed subject areas the most conspicuous potentials and risks of the Danube Delta area are summarized below:

### Potentials/Opportunities

- + ITI as a new instrument for the programme period 2014-20
- + there is enough money available
- + Danube Region Strategy addresses lack of calling the EU money
- + multi-ethnic population
- + existing school in C.A. Rosetti
- + sense of community → ethnic groups
- + knowledge of traditional handicraft
- + dynamic of the landscape
- + biodiversity
- + awareness for co-existence of nature and mankind
- + (knowledge of) ecological construction techniques
- + potential of the resource reed

### Challenges/Risks

- decrease in population
- very few employment opportunities
- limited access to natural resources
- almost no EU projects in the Danube Delta in the period 2007-13
- lack of knowledge for calling EU funds
- insufficient administration
- lack of networks for young people and women
- isolation of ethnic groups
- dynamic of the landscape → huge interventions in the landscape
- lack of technical infrastructure
- lack of legal instruments
- stagnancy of tourism

As many remote areas in Europe, the Danube Delta has to deal with some major issues, one of them being a trend that can be noticed throughout the last decades: migration movements follow a recognizable pattern: from rural to urban. This ongoing process can be observed in most Danube Delta villages and seems to be the result of the unfortunate combination of very low living standard (lack of basic infrastructure and health services, ...), very few educational/job opportunities and maybe even the lack of networks for young people (and women) in most communes in the area. Despite these and many more deficiencies, not a big percentage of the available EU funds were taken in the last years to implement ideas and doing so achieving improvements in the area. A lack of knowledge of how to call EU funds and insufficient administration slows down progress.

With these topics representing severe threats to the region - amongst some others, there is also much potential in the area that offers a lot of possibilities to build on. There IS a lot of money available, more and more EU strategies focus on the area and seem to acknowledge the problem of leftover funds. Also a rich biodiversity (already well known), resources such as reed and a dynamic landscape are only some of many potentials of nature in the area. But also people's knowledge of traditional handicrafts, ecological construction and nature, their sense of community and even their multi-ethnic background could be identified as big potentials.

Elaborating on just a few of the above-mentioned opportunities and threats in this chapter, we will focus on some of these potentials in our individual work.