

SOCIO-ECONOMIC DEVELOPMENT IN THE DANUBE DELTA BIOSPHERE RESERVE

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Key-words: Danube Delta Biosphere Reserve, socio-economic, sustainable development.

Abstract. Romania plays an important part in the EU Danube Region Strategy as co-ordinator country together with Austria. Its main goal is the socio-economic development of the Danube Region with strict observance of environmental protection principles. It is a priority task of this country as most of the Danube Delta Biosphere Reserve lies on its territory, a unique ecosystem in Europe and one of the largest natural wet zones in the world that has a threefold protection statute: UNESCO World Natural and Cultural Heritage Site, Wet Zone of International Importance (Ramsar Convention) and Biosphere Reserve of the “Man and Biosphere” UNESCO Programme. The Danube Delta Project aims at striking a balance between protecting this unique natural and cultural heritage and meeting the aspirations of the local population for better living conditions by creating the best opportunities for its economic development.

1. INTRODUCTION

The Danube Delta is a restrictive geographical space, with physical geographical constraints (water-emersed areas restricting settlement, specific water-governed soils and vegetation) and relational constraints (peripheral position, isolation, little accessibility). Its particular landscape and landform ask for a special type of human settlement and economic development.

Declaring the Danube Delta a Biosphere Reserve has engendered socio-economic changes, the local communities and economies having to adapt themselves to environmental conditions.

As known, the Danube Delta Biosphere Reserve, implicitly the Danube Delta, are one of the most representative wet zones in this country and in the world, large areas having a protection regime. At the same time, works are underway to renaturate the wet zones turned over the years into agricultural land, eventually proving to be inefficient.

The socio-economic situation of the locals is affected by this restrictive geographical space (e.g. frequent flooding when the Danube overflows, or lasting periods of drought), people being vulnerable to environmental changes.

The Danube Delta population is a vulnerable social segment because of the difficult living conditions imposed, in general, by natural factors, but also by the inappropriate economic and technical-urbanistic infrastructure. Prospective solutions have in view to identify and elaborate ways and means of improving the quality of life and create socio-economic activities adequated to this space.

In order to obtain a balanced socio-economic development and environmental protection in the area, the Administration of the Danube Delta Biosphere Reserve and the Ministry of Regional Development and Public Administration initiated (by Government Decision) the Danube Delta Strategy Project for the 2011–2015 period. This Strategy set a series of general targets to raise people’s living standard by making best use of local economic and cultural assets, at the same time protecting the Deltaic environment. Several other specific areas, falling under this Strategy, are education, health-care, transport, infrastructure, tourism, culture, agriculture and regional development. However, fulfilling these specific tasks means securing the Delta population stability.

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2. THE CURRENT DEMOGRAPHIC SITUATION IN THE DANUBE DELTA

The present settlement system in the area consists of only one town – Sulina, and seven communes, that is, 23 settlements in all with a population of over 10,706 inhabitants (2011 Census data) (Fig. 1).

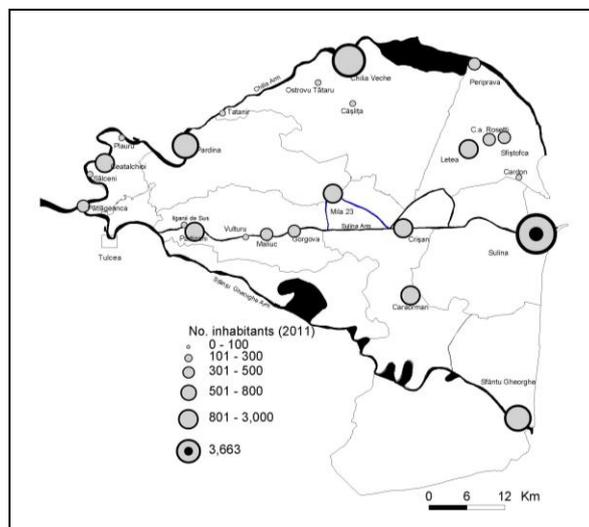


Fig. 1 – The Danube Delta settlements by number of inhabitants.

These data show a decreasing trend compared to previous censuses, due both to a negative natural balance and to population migration, a phenomenon affecting all of Romania. In-between the 1912–2011 censuses the Delta lost over 7,000 inhabitants, numbers rising in 1966 (20,421), when complex programmes of turning the area agricultural and fish-rearing had attracted numerous specialists and workers; a similar situation (mild numerical increases) happened also after 1997, when industrial restructuring, associated with mass remittances, made people return to the Delta.

Also Sulina Town, the only urban settlement in the Danube Delta, experienced emigrations when some economic activities came to a halt and young people, in particular, started looking for a job in the better economically developed cities of Tulcea, Brăila, Galați and Constanța, (2011 Census figures show Sulina to have 3,663 inhabitants).

Looking at the age and sex structure, it is obvious that demographic ageing affects all deltaic settlements, especially the more isolated ones situated far from the main water transport routes (Fig. 2).

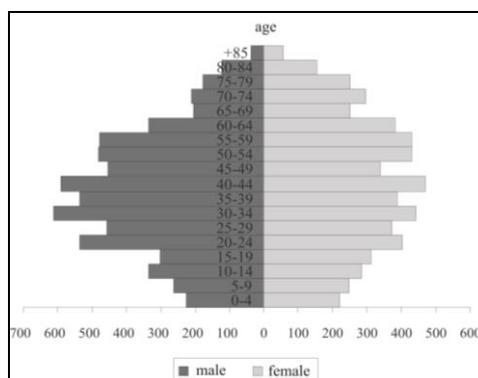


Fig. 2 – The age and sex structure.

3. THE LOCAL ECONOMY. CHARACTERSTICS

The main occupation in the Danube Delta, beside fishing practiced for some 6 months/year, is agriculture (which meets local needs) and agro-tourism from June to September. In some settlements, the absence of arable land hampers the practice of agriculture (Sfântu Gheorghe, Crişan, Mila 23), the locals cultivating only the patch of land around the house for family consumption. Some families use to make a living mainly from tourism, but they are rather an exception. The majority are engaged in both activities, with a variable share in the family income. With the exception of public institutions, jobs are a rarity, available only in a few shops, bars, restaurants, bakeries and boarding-houses; worst-off people work by the day in garden digging, or in the building sector of holiday houses, in particular (F. 42-years old says “when there is a job to do, we go there to do it”).

Economic problems of the local population

The main problem is absence of investments, hence of jobs for young people, in particular. Finding work in the towns adjoining the Delta is pretty difficult, because work-places are scarce there, too, commutation is very expensive and unemployment is high throughout the area. Major problems facing the Delta rural communities are little employment for the workforce and low incomes (Table 1).

Table 1

The active population structure, number of unemployed and unemployment rate (2011)

Localities	Total population	Active population	Of which:	Inactive population	Unemployed	Unemployment rate (%)
			employed population			
Sulina	3, 663	1, 807	1, 605	1, 856	202	11.2
C.A. Rosetti	910	454	424	456	30	6.6
Ceatalchioi	593	349	341	244	8	2.3
Chilia Veche	2, 132	797	747	1, 335	50	6.3
Crisan	1, 228	534	516	694	18	3.4
Maliuc	856	452	441	404	11	2.4
Pardina	527	256	250	271	6	2.3
Sfântu Gheorghe	797	387	366	410	21	5.4

4. INFRASTRUCTURE AND DEVELOPMENT OPPORTUNITIES

Education. The quality of life is significantly related to and dependent on education and skills. There are few university graduates and qualified teachers are missing (dwelling conditions being improper for the needs and demands of this socio-professional category). Most pupils being poor prevents them from going on to secondary school.

The material endowment of the Delta settlements differs from place to place, inexistent in small and very small settlements and relatively good in communal centres (compared to the small number of pupils/1,000 inh.), where schools and kindergartens do exist (Table 2).

A number of five out of the eight schools and kindergartens have their own minibuses to take pupils from villages to the communal centre over a distance of 3–14 km. In isolated villages, which minibuses cannot reach, the only transport means are the channel boats. Sofar now, the Danube Delta has no accommodation facilities in boarding-schools, or weekly programmes in school campuses to offer pupils optimum learning and dwelling conditions (*Danube Delta Strategy, 2011–2015*).

The main education problems involve the functional optimisation of the school network, adjust the offer to the needs of the local labour market and produce better trained and skilled people.

Table 2

Educational infrastructure (2011)

Localities	Schools	Enrolled pupils	Teachers	Teachers/ 1,000 pupils	Class-rooms	Graduates	No. PC
Sulina	1	496	33	66.53	18	74	49
C.A. Rosetti	1	97	13	134.02	10	7	18
Ceatalchioi	1	57	4	70.18	4	5	12
Chilia Veche	1	236	16	67.8	9	24	10
Crişan	1	129	16	124.03	10	16	8
Maliuc	1	73	11	150.66	11	5	14
Pardina	1	65	6	92.31	3	10	16
Sfântu Gheorghe	1	64	7	109.38	5	5	11
total	8	1,217	106	814.92	70	146	138

Data source: <http://www.insse.ro>

Health. Another major goal to develop and stabilize of the Delta population is the health-care infrastructure which, together with education, are key development elements in any society.

Medical assistance in the Danube Delta is provided by 7 family doctors under contract with the County Health Assistance Chamber (Table 3).

Table 3

Health infrastructure (2011)

Localities	Inhabitants	Doctors	Doctors/ 1,000 inh.	Family doctors	Dentists	Chemists	Nurses
Sulina	3,663	8	1.9	2	3	1	10
C.A. Rosetti	910	0	0	0	0	0	0
Ceatalchioi	593	0	0	0	0	0	0
Chilia Veche	2,132	3	3	2	1	0	1
Crişan	1,228	1	1	1	0	0	1
Maliuc	856	1	1	1	0	0	0
Pardina	527	0	0	0	0	0	0
Sfântu Gheorghe	797	1	1	1	0	0	0

Data source: <http://www.insse.ro>

Specialist medical assistance is available in county hospitals; there is an emergency assistance service with 5 motor-boats, equipped with medical facilities, that can cover the distance between the towns of Tulcea-Sulina and Tulcea-Sfântu Gheorghe in about an hour's time. In winter (when the Danube is frozen), an ice breaker, or a SMURD helicopter are used in emergency situations.

The medical material basis is unsatisfactory, consulting rooms function only in Sulina Town and in the communes of Chilia Veche, Crişan, Maliuc and Sfântu Gheorghe; the town's hospital had been closed down in 2011, an emergency section, subordinated to Tulcea County Hospital, was opened in 2012. The town also has two drug-stores.

Health services in the Danube Delta have to cope with difficult access and doctors' disinterest for the local population, not very numerous either and low-income, too; moreover, many people have no medical insurance.

As a conclusion, the main health problems involved establishing medical assistance networks in all of the Delta communes, increasing the quality of medical services, and informing people on access facilities to medical services.

Transports. An important element are an important element of access which the area's socio-economic development depends on. The Danube Delta localities are connected by inland navigable waterways, regular passenger and commodity cruises on the three arms of the Danube being scheduled by NAVROM DELTA Company. Noteworthy, persons that have a stable domicile, a work-place or discharge activities in the Danube Delta settlements and in Tulcea Town, provided they possess conclusive documents to attest it, benefit from subsidised tariffs. Apart from NAVROM-based transport, there are also private companies engaged in transport schemes between the Delta settlements. However, charges are much higher and there are no regular scheduled hours, which depend on passenger traffic.

Road transport outside county boundaries is provided by daily return bus drives from Tulcea to Bucharest, Constanța, Galați, and Brăila.

Rail transport between Tulcea and Medgidia is difficult and overdue, this section needs updating and the line electrified. Besides, a bridge across the Danube at Brăila would facilitate the access of Tulcea County and the Delta settlements to the other regions of Romania (*Danube Delta Strategy, 2011–2015*).

In the absence of road connection facilities between Tulcea Town and the Delta, locals find it difficult to sell their own products in the market, an activity which for many represents the principal income source of the family. Also, the absence of transport means in the Delta could have negative effects on the population's living standard, being a drawback to some economic activities, or to tourism.

An older desideratum of the Delta inhabitants is to have inland access roads, whatever the weather conditions, to the economic and social services of Tulcea Town. However, a World Bank study shows that road-building depends both on financial possibilities and on the environment (*Diagnostic Report. Integrated Strategy of the Danube Delta Sustainable Development*. Project co-financed by the European Fund for Regional Development through the agency of POAT, 2007–2013).

Major transport-related priorities to promote the Danube Delta socio-economic life and tourism in this area imply finding solutions for the transport of people and commodities; improving roads, especially those running from Bucharest and from the sea-side so as to connect sea-side tourism with Danube Delta tourism; setting a time-schedule for Tulcea airport, only occasionally operated at present; building a tourist harbour in Tulcea, only for agreement boating, and tourist harbours in Sulina Town and in the settlements of Crișan and Sfântu Gheorghe.

Tourism. A Danube Strategy priority is to put to advantage the area's natural and cultural assets. Once the Danube Delta was declared a Biosphere Reserve, reorganising its tourist activities required the sustainable use of its natural resources and of the landscape, in particular. The area's impressive tourism potential is not sufficiently exploited, a tourism development strategy is missing, instead only actions of organising and implementing ecotourism are in place as the best form of tourism in a protected zone.

The Administration of the Danube Delta Biosphere Reserver (ADDDBR) designated 9 tourist zones available on 15 water routes and 9 on land routes, tour operators being obliged to use them. Tourist services operators and the tourists themselves must protect the deltaic ecosystems and reduce the negative impact of tourism on the environment.

The tourist infrastructure in the Delta consists of the technical-material basis of deltaic settlements and of Tulcea Town: transport, accommodation, amenities and public catering. Most hotels are located in Tulcea, the gateway to the Delta; there is one hotel in Sulina, one at Crișan, and several boarding-houses and tourist villas in the settlements of Crișan, Sfântu Gheorghe, Mila 23, Vultur, Gorgova, Chilia Veche, Periprava and in Sulina Town.

Accommodation capacity values over 2001–2013 indicate a mild increase after 2004, and a slight decrease in the years 2009–2010. Noteworthy, no officially registered beds in rural tourist boarding-houses, agro-tourist boarding-houses and in floating hotels had existed until 1998 (Fig. 3).

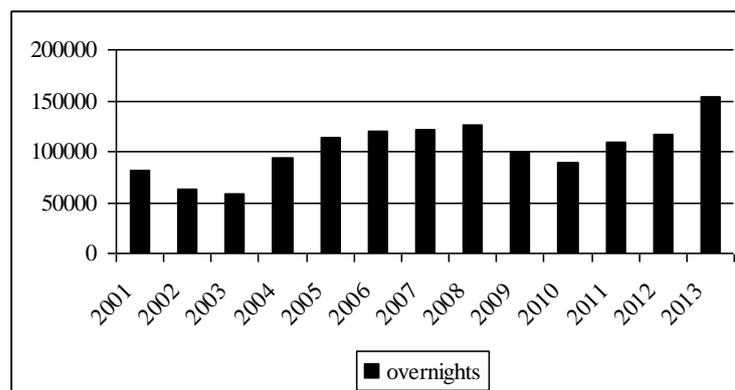


Fig. 3 – Overnights (2001–2013).

As a result of promoting deltaic tourism at home and abroad, of increasing the accommodation capacity, and offer better services, the number of tourists who chose vacationing in the Delta was rising. Romanian tourists prefer sojourn programmes, while foreign tourists opt for trips (Fig. 4).

Landscape diversity and traditional settlements widened the range of tourism opportunities and forms: rest and recreation, discovery, water sports, sporting fishing, sporting hunting, scientific tourism, rural tourism, ecotourism, etc. (Photo 1).

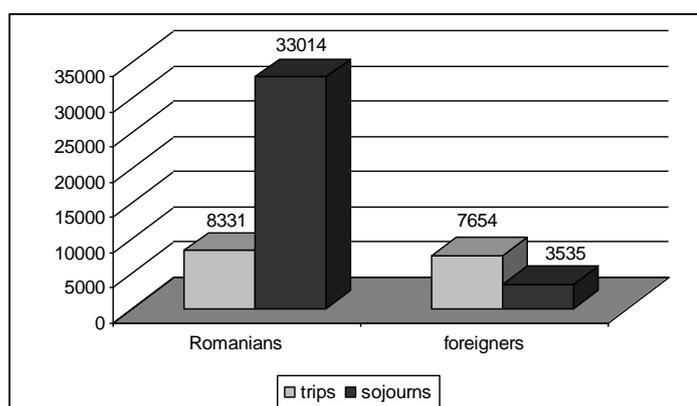


Fig. 4 – Tourists' preferences:sojourns and trips.



Photo 1 – Watch tower.

Likewise other domains, also tourism must solve a series of problems in order to improve its offer, e.g. have drinking-water networks and waste dumping-sites in all settlements, registration services for incoming tourists, homologated boarding-houses at standard levels and, last but not least, solve problems of transport and access, especially to the deltaic settlements, as well as from Bucharest to Tulcea.

Local communities should be stimulated to develop ecological tourism, which promotes local customs and traditions, rather than large-scale tourism which is extremely detrimental to the environment.

Culture is an important component for the population's socio-economic progress. A UNESCO World Natural and Cultural Heritage Site, the Danube Delta has numerous assets, among which are the customs and traditions of the locals, and of each minority in the area, the architecture of Sulina Town architecture but (buildings need repair and conservation works) (Photos 2, 3).



Photo 2 – The old lighthouse.

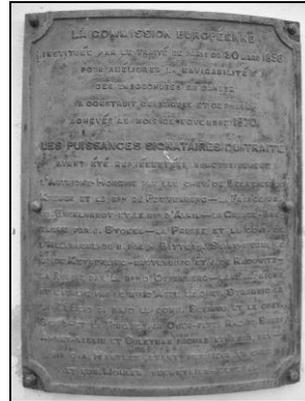


Photo 3 – Memorial plaque of the European Danube Commission.

Sulina, the only town in the Delta, played host to some cultural and artistic events: e.g. the National Festival of Musical Creation and Interpretation; the ‘Delta Feasts’ Festival of the National Minorities; Conservation and Valorisation of the Danube Delta Folklore.

As of 2003, Sfântu Gheorghe settlement has become the traditional host of the “Anonimul” Independent Film Festival, an attraction for ever more tourists by the year.

Also cultural activities need improving by rediscovering the practice of traditional handicrafts, (especially the processing of reed), developing cultural tourism, protecting and conserving the built heritage (Photos 4,5).



Photos 4,5 – Reed and its uses.

Beside the general and specific targets discussed herein, which should be observed in order to maintain the stability of the Delta population and its social and economic activities, some of the risks attached to the area, and the vulnerability of its population to climate change, must not be overlooked either.

5. RISKS AND VULNERABILITIES

Analysing the Danube Delta’s socio-economic and demographic situation has revealed some risks and vulnerabilities of the local population to certain external factors. A first risk is depopulation of the country-side, with already significant losses in the settlements of Caraorman, Cardon, Sălceni, Plauru, Sfiștofca and Vulturu, a situation caused here by isolation, deficient access infrastructure, job shortage and long distances to industrial centres. Isolation is a high risk in wintertime when floating ice and ice bridges might form, while the earthen roads, even if they do exist, become impracticable

under heavy rain or snowfall. Economic risk comes from the fragmentation of agricultural land and its improper use, lack of irrigation systems, obsolete farming equipment, little access to the funds earmarked to farming, and poor representation of the associations of producers.

Having in view that the Danube Delta is a place of special interest for tourism, environmental and natural protection, careful observance of natural habitats and optimum use of cultural availabilities and traditions, as well as people's health condition and security, be they locals, Romanian or foreign tourists are of paramount importance. Therefore the Danube Strategy aims to create a risk prevention service, little developed so far because of access difficulties, given that many settlements can be reached only by waterway (canals, backwaters). Besides, measures should be taken to prevent the consequences of frequent exposure to natural risks (floods, droughts, earthquakes, etc.), technological and anthropic risks (e.g. arson of reed over large areas) with dramatic effects on the environment, natural habitats and protected natural areas. Therefore, elaborating projects to improve the capacity of the emergency professional staff in matters of prevention and control, as well as in emergency situations in the Danube Delta area and in the other Danube riparian counties, is an imperative demand (http://www.mae.ro/sites/default/files/file/userfiles/file/pdf/UE/Str_Dunarii_NonPaper.pdf).

Another problem the Global population must cope with, is climate change, visible also in the Danube Delta, where lasting droughts and floods have become ever more common; it is only Sulina Town and the settlements of Tudor Vladimirescu, Crişan, Mila 23, Caraorman, Sfântu Gheorghe, Maliuc, Ilganii de Sus and Pardina that are partly protected by dams (Photos 6,7).



Photos 6,7 – Protection dams in the settlements of Mila 23, Crişan.

Particularly vulnerable to climate change are the poor populations, those with no stable incomes for a decent living, the great many unemployed, the aged without social assistance benefits, etc. This is also the case of the Delta people. The effects of climate change (if temperatures rise by 1.5⁰–2⁰ C) will be felt by the local communities whose welfare depends on the area's water and food resources; at the same time, also natural ecosystems and the Delta's unique biodiversity are going to suffer (wwf.panda.org/dd_climate_adaptation. *Vulnerability of the Danube Delta Region to Climate Change*).

6. CONCLUSIONS

The analysis of the deltaic space in terms of population, economic and social activities, endowments, accessibility, quality of the environment, conditions of life and work shows that there are still many problems to be solved in order to create normal living conditions in this area.

A brief overview reveals the steady numerical decrease of inhabitants through low birth-rates and emigration of the young population looking for a job elsewhere, an ageing workforce, large

numbers of inactive people and of unemployed. Economic activities are limited mainly to turning to account local natural resources.

Development priorities in the Delta should focus on creating better education and health services, which means having a more qualified teaching staff, a functioning school network, and primary medical assistance extended to communal level.

The transport agenda includes solutions to organise navigation and shorten sailing time on the three arms of the Delta, but also to develop and update land routes, improve navigation security on the Danube arms and canals and impose restrictions to prevent water pollution by ships. Apart from the transport infrastructure, the technical-urbanistic infrastructure needs improving, too, by connecting all settlements to the drinking-water network, extend the used-water collecting network and find solutions to dumping household refuse.

The tourist sector should encourage the practice of ecological tourism and the balanced development of the entire Delta tourist zone, a first step in this direction having been made by building a mini-harbour at Sfântu Gheorghe. The tourism infrastructure of Sulina Town and of the Delta tourist sites should be improved.

Among the area's assets we would recall its great biodiversity, the wide range of habitats and forms of life which make the Danube Delta the best known example where there is a large number of floristic and faunistic species worth-conserving. A positive action is ecological reconstruction in order to remake the deltaic environment and bring it as close as possible to its initial state.

The Danube Delta plays an important role in the Danube Strategy given that it administers most of the Danube Delta Biosphere Reserve, the youngest territory of the Danube Basin and a unique ecosystem in Europe, listed since 1991 as UNESCO site of mankind's cultural heritage.

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Received June 15, 2015

