

finer scale models and may well complement or be combined with other ecological assessment methods at the landscape scale (see e.g. Verdonschot 2000; Gergel et al. 2002). It would be interesting to perform such an application and to compare the results with observational data and other biotic assessments of streams in the Danube Basin.

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Landscape planning in the Danube River Basin

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Understanding landscape planning

Landscape planning became necessary as there was a paradigm shift from traditional to modern life style with dramatic changes for individuals. How can we conserve the ecological and cultural qualities from the past and combine them with the possibilities and increased choices of the present and future? The altered resource access brings a lot of improvements along with negative aspects that usually are considered only later on. For many non professionals landscape planning is often understood as a kind of repair planning at the local scale, while practicing professionals would rather like to see it as a vision for every aspect of planning at any spatial scale. The reality is somewhere in between.

With regard to the Danube River Basin (DRB), landscape planning started in the rich Upper Danube countries Germany, Switzerland and Austria in the 1960s and was promoted during the 1970s and 1980s. In the former communist countries of the DRB often state institutions were dealing with landscape planning but rational development planning in five years plans was favored over landscape planning. In the 1990s and the first decade of this century all DRB countries are in theory concerned with landscape planning; however, the level and awareness to landscape planning can vary significantly from place to place.

Tasks in landscape planning can widely vary from nature protection zoning to developing urban green infrastructure. Landscape is perceived as an arena where all natural and human processes are taking place. Planning is any action directed to the future. There are known limitations: we do not anticipate surprises and it is hard to define an “end point” of planning. Landscape planning is open ended and has to be adjusted regularly.

Sometimes people differentiate between landscape planning and spatial planning. They refer to the same regions and areas but often to different groups of interests. Landscape planning is often related to ecological and nature conservation interests, while spatial planning is more connected to economic interests. Another distinction is undertaken between urban planning and landscape planning. Urban areas, usually the densely populated cities and towns of the DRB, are perceived as a separate field of planning, and landscape planning is considered to take care of non urban landscapes with low population densities.

Planning instruments were lacking back in time. The regulations of today refer to necessities of the past. We tend to neglect many processes to ease the management of required actions. Today's necessities will be incorporated in the future planning instruments. A prominent example is climate change. So far, we do not have any binding instrument to consider this change, but climate change adaptation plans are on the way to be incorporated into future landscape planning. Without landscape planning the number of unwanted change is higher.

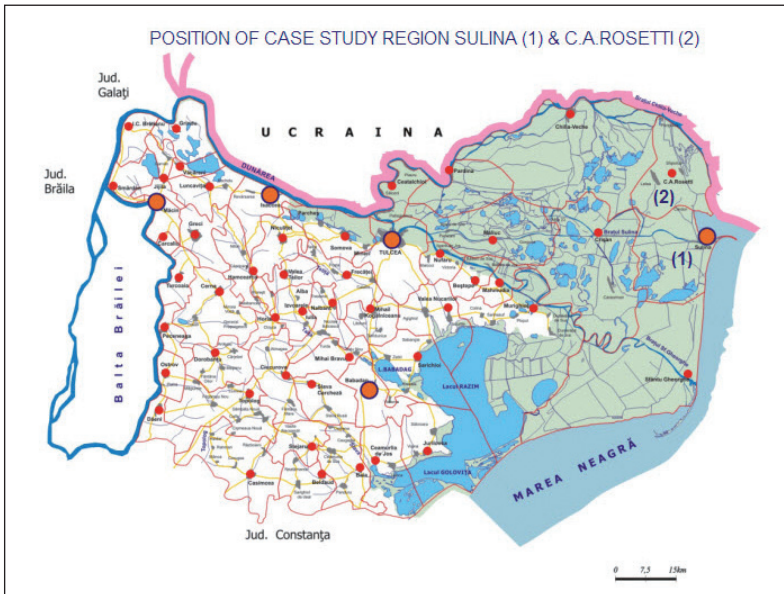


Figure 1. Map from Tulcea county, modified after <http://www.cjtulcea.ro/judet/harta.htm>

Legal frameworks are part of the planning procedure and a support to ensure that planning and its instruments remain operational and measures are controllable. Currently dozens of frameworks seem to be relevant for landscape planning, some of them legally binding others on a voluntary basis. A prominent example is the EU directives, in general also applied by non EU countries. Since 2000 the Water Framework Directive (EU 2000) is a very influential instrument, the Habitats Directive (EU 1992) incorporates the dedicated Natura 2000 areas of the Ramsar Convention, or the Renewable Energy Systems Directive (EU 2009) postulates that 20% of the EU energy demand has to be covered by renewable energy sources by 2020.

Landscape architects criticized that the current set of comprehensive instruments does not properly reflect the cultural aspects of landscape planning. Historical, archeological and other heritage aspects are not included in ecological oriented landscape planning. A major initiative was set by the Council of Europe with an European Landscape Convention (ELC) in 2000 (EC 2000). Any cultural and ecological treasures within the municipality should be identified and respected by future planning. The convention, however, is not signed by some states after ten years. A practical reason behind the non adaptation is lacking financial resources to implement this inventory; however, the principle to combine ecological and cultural aspects in landscape planning has never been questioned and is valid throughout Europe and the DRB.

According to the ELC, the smallest administrative unit (i.e., the municipality) is seen as the most appropriate for landscape planning. The area of municipalities in the Danube River Basin varies from 10 to 100s of square kilometers. At the smallest administrative scale the entity of natural and cultural elements does still exist and a holistic management as compared to sector management is only feasible here. Another reason why the smaller scale of landscape planning

is needed is that only major problems and projects can be administered via an instrument like the WFD. The WFD dealing with the DRB as a single entity has as smallest unit areas of 4000 km² which is approximately 10 to 100 times larger than what the ELC considers as appropriate. However, the ELC and local landscape planning can support the WFD.

Currently there is discussion to merge several rural municipalities with scattered population to a larger political entity. The economic power of rural land is decreasing and indigenous development decisions became very limited. Young people migrate to urban centers and few people remain to continue the long-established occupation in agriculture, forestry and social life. The task of landscape planning is to find new initiatives and uses suitable for the remaining inhabitants to cope with changed socio-economic parameters or if this is not possible to come up

with alternatives where nature functions are restored and very limited effort from the human side is needed.

Case study: Landscape planning in the Eastern Danube Delta

A case study from the most Eastern region in the DRB may exemplify landscape planning (Figure 1): The town of Sulina with surroundings (area: 312 km², incl. 14 km² urban land) and the rural municipality C.A. Rosetti (area: 266 km²), places I have visited several times during the last ten years, with a combined area of 600 km² and some 6000 inhabitants, two thirds of them living in the city of Sulina. Both municipalities are part of the Danube Delta selected as the "Landscape of the Year" in 2007–2009 by "Naturfreunde International". It is the last original delta in Europe and a major RAMSAR site, providing shelter to many endangered species. The inhabitants have different religions, languages and cultural background and this high diversity prevented significant mixing over centuries. Main activities are fishing, hunting and reed cutting.

The Danube Delta is one of the few Romanian regions where a development plan does exist (DDNI & IVL 2006). This plan respects the new conditions provided by the EU to new member states. In addition Sulina has made a municipal development plan targeted towards 2013 combining economic growth and sustainable eco-system management. The number of recreational homes, pensions and motorboats multiplied in the last decade. Municipalities are just beginning with waste disposal provisions as uncontrolled waste dumps are a frequent phenomenon. Visiting the area with students in 2009, we could collect hundreds of pet bottles in minutes. The Danube Delta Biosphere Reserve Administration (DDBRA) introduced a small fee for every visitor entering the delta to undertake cleaning measures.

The two neighboring municipalities Sulina and C.A. Rosetti provide an interesting contrast in the region. Sulina is the entry to the Rhine-Main-Danube Canal and has seen more important times in the past. From 1856 to 1939 it was the seat of the Danube Commission and as a free port considerably larger than today with 4600 inhabitants. During the 1990s there was a major decline in ship traffic and general activities in Sulina as a consequence of the war in former Yugoslavia. After 2000 the situation improved, in particular during the last five years, when EU regulations were predominant for the management of the Danube Delta. Projects for revitalization co-financed by EU funding programs are going on. The Russian, Greek and Romanian Orthodox, Catholic, Jewish, Muslim cemeteries give testimony of the diverse cultural life and are protected by the town. More than 8,000 tourists in summer triple the population to up to 15,000 and tourism became the most important income in the city that had a reported unemployment rate of 40% in 2004. The aim is an ecological sustainable tourism mixed with the unique position of Sulina and its extraordinary cultural history. Landscape planning is an important issue and should ensure that invested money has the wanted output. The coastal region, the most Eastern in Romania will be developed to a touristic beach in the coming years. A better integration of ecological and economic purposes is more feasible here than elsewhere in Romania.

Fewer tourists will make it to C.A. Rosetti. Its centre is about 15 km north of Sulina. This municipality is best known for Letea forest, a strictly protected region, which is one of the oldest natural reserves in Romania established in 1938 and covers an area of 30 km². The main village C.A. Rosetti hosts a monastery as the main attraction. Sfistofca alike Periprava further North at the Kylia branch are the most important Russian (Lipovan) villages in the Delta (*Figure 2*). Cardon in the South is the fifth location in the municipality. All together less than 1200 people live in the municipality of 266 km². A special task of landscape planning is to balance



Figure 2. Church of Sfistofca, C.A. Rosetti Municipality, February 16, 2010 (Photo: M Breiling)

the conflicts of strict nature protection of Letea forest, wildlife and domestic animals. There are more than 3000 feral horses in the municipality, released into “freedom” after the collapse of socialist agricultural cooperatives. Today they challenge the protection of rare species of Letea forest. Harsh winters like the one of 2009/10 contribute to natural balance and killed in particular the young foals; hundreds of cadavers are now spread over the landscape and a considerable health risk. This problem is not only restricted to feral horses, but also to cattle. When the food reserves are eaten up, hungry cows are sent to the wilderness to care for themselves, sometimes with yellow marks, signs that they are registered under the EU agricultural support scheme. Many animals die this way, e.g. if they enter thin ice, fall into the water and drown or freeze to death if they reach land. After a major bird flu epidemic in 2006, in March 2010 a new case of bird flu virus alarmed the authorities. All domestic birds from Letea were killed to avoid the spreading of the virus to wild birds. The combined understanding of the natural and cultural processes is most important here to set the appropriate measures.

Concluding Remarks

Several thousands of independent municipal regions in the DRB already could profit from professional landscape planning on the local scale. It remains open, if funds will be available for future projects. It is advisable to combine development plans and protective landscape planning. There are many good examples within the DRB on how to do this. In Germany the concept of so called “Ausgleichsflächen” compensates scenic land used for new infrastructure (e.g. roads) by restoration of former agricultural or industrial areas. Another idea is compensation by money: For each large-scale infrastructure project a certain percentage has to be used for spin-off projects, such as promoting green corridors, greenways or bicycle-tracks. In Vienna many farmers would have given up cultivating wine yards, fruit trees and other agricultural land if they would not get compensation payments from the city, so called contract habitat protection, which is considerably higher than other EU support. Landscape planning with many measures on local scales will help that nature protection and cultural heritage get the adequate awareness that is not yet everywhere in the DRB, but has perhaps never been so high.

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