

LOCAL AGENDA 21 - LOCAL PLAN FOR SUSTAINABLE  
DEVELOPMENT GALATI

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**Abstract**

*Agenda 21 is a plan for implementing the concept of Sustainable Development for 21<sup>st</sup> Century, launched at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. Romania as a signatory to the Convention in Rio de Janeiro, committed herself to take steps to apply this document, both nationally and locally.*

*In Galati, a local sustainable development plan was created in order to apply the directives of the Convention in Rio de Janeiro in 1992.*

*Tools of Local Agenda 21 are: Local Strategy for Sustainable Development, Local Action Plan, Portfolio of Priority Projects.*

*Throughout this paper we analyzed only local issues of sustainable development strategy in Galati.*

**Keywords:** vegetation and fauna, water, green spaces, port, tourism, energy.

**JEL Classification:** Q01, Q56.

Agenda 21 is a plan for implementing the concept of Sustainable Development for the 21<sup>st</sup> Century, launched at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. Romania, as a signatory to the Rio Convention, pledged to take steps to apply this document, both nationally and locally.<sup>1</sup>

The principles underlying the preparation of this document are:

- social progress, conditioned by the needs of each individual;

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<sup>1</sup> LOCAL AGENDA 21 - LOCAL PLAN FOR SUSTAINABLE DEVELOPMENT Galati, pp. 1-3.

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- effective environmental protection;
- rational use of the natural resources;
- maintain a high level of economic growth and employment.

Advantages of Local Agenda 21 are:

- decentralized development
- the promotion of key projects for the local community
- providing the framework for financing local infrastructure projects
- Promoting public-private partnership
- involving all local stakeholders

Instruments of the Local Agenda 21 are:

- Local Sustainable Development Strategy
- Local Action Plan
- Portfolio of Priority Projects

The Local Sustainable Development Strategy document is a long term project of the public administration and local institutions. The structure has three parts:

- History and natural capital (the geographic framework, environmental factors quality);
- Man-made capital, the economic situation of the area;
- The proposed targets for the development of the city.

The Local Action Plan for Sustainable Development is a real planning on medium and long term to achieve the objectives of the local strategy. Those measures are achieved through programs and projects.

The Portfolio of Priority Projects includes those programs and projects that respond to the local community issues, and which may contain implementation indicators, that will be made soon.

The concept promoted by the Agenda 21 is based on the transition from uncontrolled economic growth which generates negative effects for both social and environmental standard - to sustainable development.

The role of the local authorities, together with the community is extremely important in determining the liability, the decentralized allocation of resources, in increasing consistency of policies and so accomplishing the sustainability of development.

This program was developed to improve the population's living standards and aims to stimulate public participation in the decision-making process. It is therefore essential that each local authority should create their own Local Agenda 21.

## 1. Local Sustainable Development Strategy in Galati

### The Natural Capital

#### 1.1.1. Geographical Location

Galati is located in the South-East of the Covurlui Plain, on the left bank of the Danube, lying on three terraces, from 4 to 35 m high, 7 km downstream of the Danube and Siret confluence, 150 km upstream from the Danube's flow into the Black Sea.

#### 1.1.2. Climate

The county of Galati has a continental climate (the southern and the central part totaling more than 90% of the area are in the plain climate and the northern part representing 10% of the territory is in the hills climate). In both provinces the summers are very hot and dry and winters are cold, marked by strong blizzards, and the frequent interruptions caused by warm and humid air currents from S and SW, which determines intervals of heating and melting of the snow layer.

The rainfall in the county recorded the lowest values in the country.<sup>1</sup>

#### 1.1.3. Flora and Fauna

According to the specific relief and climate, the vegetation and fauna are characteristic of the steppe and forest steppe zone. In the Danube and Siret area the willow groves and various species of plants are predominant.

In the Covurlui Plateau there is a forest vegetation, pasture and hay. Large areas are planted with vineyards, fruit trees and grain crops. Fauna is represented by rodents and birds - quail, partridge, skylark are the most common.

The secular forests of Adam, Buciumeni and Viile host species of hunting interest - wild boar, fox, etc. - the waters of Siret and Prut have a rich aquatic fauna.

The Natural Reserve - Garboavele Forest: Garboavele Forest

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<sup>1</sup>21 Local Agenda, op. cit, pag.6

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Reserve is located at 17 km distance from Galati.

Covering about 100 hectares, the reserve is surrounded by locust trees on an area of 350 ha. Gray oak and pubescent oak, hawthorn bushes, dwarf almond are predominant.

The forest hosts over 470 species of flora, including some rare species (Iris, Spring adonis, Romanian peony). In the Valley of Garboavele Forest there is a specific area of swamp vegetation.

The fluviatile dunes at Hanu Conachi: The Floristic Reserve is located at 50 kilometers distance from Galati and has an area of 199 ha. It is a sandy strip that extends over 4 km and it is populated by creeping willow and acacia plantations. Fauna is represented by species like sand lizards, sand snakes.

### 1.1.4 Environmental factors

#### The Water

##### Surface Waters

The hydrographic network is dominated by two major collectors: the Siret and the Danube rivers. In the Southern part of the city the Siret River flows, in the south-eastern part of the city the Danube, the Prut River flows in the east, in the west the brook Catusa and in the north-east the Lake Brates.

For farms or irrigation, water is captured from the Danube and the Lake Brates. The lake has an area of 24 square km having two pools: Upper and Lower Brates. Inside the Lower Brates, 21 square km arranged for fish, irrigated agriculture is practiced on about 14 500 ha and in the Upper Brates on approx. 7500 ha.

#### Groundwater Resources

Groundwaters are stored in porous rock horizons, in flat or discontinuous aquifer layers, in alluvial gravel of the Siret and Prut. They are also found in the sandy plain of Covurlui. Interception water table is done in the valleys, through wells. In the interfluves, the ground water depth is 10-30 m. In terms of mineralization, they contain 0.6 to 1.0 g/l salt, and their hardness is 15-20 degrees, the water being drinkable.

### Problems

- increasing levels of iron in the Danube and Prut, because of the iron particles transported in soil by the natural rainfalls from the slag heaps of Arcelor-Mittal;
- Infection of groundwater due to the landfill, totalling an area of 3.4 ha;
- Infection due to lack of ground water sanitation up to 90% of the old stock built.

### Air

The main source of atmospheric pollution is a steel plant "Arcelor-Mittal" Galati, located on the platform Smardan at 3 km west of Galati and having an effective area of 1594 ha.

Integrated steel making is, in terms of energy, very efficiently, but it implies the existence of numerous sources of pollution, especially in the air.

After being processed, the sources from the steel plant "Arcelor Mittal SA Galati are divided into:

- Sources that emit pollutants as a result of combustion processes;
- Various sources that emit particulate compositions from transport and processing raw materials.
- Also, the sources of air pollution sources can be concentrated with high flows, which discharge pollutants from dispersion in bins, or it may be individual and random sources, like gas leaks, leaks, etc.

There are currently 94 de-pollution installations in the steel plant "Arcelor-Mittal" in Galati, they operate according to MAPPM Order 462/1993, a number of 36 installations (about 39%).

The investments in environmental protection made these years at the steel plant "Arcelor-Mittal" Galati, focused on upgrading and modernization of the production stages.

Concerns in this area began in 1991, and the investment has been directed to environmental factors: air protection, water protection, prevention, collection and disposal of waste, soil and groundwater protection and natural environmental protection investments.

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### Problems

- The quantities of pollutants emitted into the atmosphere are high due to the plant size, of those seven plants and about 140 baskets of dispersion.

The plants that contribute most to the air pollution: Chemical-recovery plant, Agglomeration plant furnaces, steelworks Refractory Plant.

### The Soil

#### Geotechnical data and geomorphologic processes

The soil is made up to a depth of 15.30 m of yellow loess intercalations of clay dust. As a result of rising groundwater level, the yellow loess has various moisture conditions.

#### Geological structure

From the geological point of view, Galati is situated on the south side of the Moldavian platform; in this area it makes contact with the platform of North Dobrogea.

The sedimentary coverlet that covers the soil of the rigid platform has a thickness of 3,000 m and consists of Paleozoic and Neozoic formations.<sup>1</sup>

#### Seismicity

In terms of tectonic, Galati is located at the tectonic fractured line Focsani - Namoloasa - Galati, an area where earthquakes are felt in Vrancea and the frequency is about 30 years with a seismic intensity level corresponding to 8 degrees per Mercalli scale.

In the areas with high hydrostatic level and alluvial land, the building dynamic coefficient increases, and seismic forces that the structure is loaded with up to 8.5 on the same level corresponding to the seismic scale.

### Problems

- the effects of eliminating the drainage and natural collectors began to be noticed by the occurrences of water domes. Simultaneously with the

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<sup>1</sup> Local Agenda, op.cit, pp.10-13.

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formation of these domes, in the area occurred the wetting of the layer of the macro yellow loess, which, along with the defective policy of construction discipline causes the phenomenon of subsidence;

- to know the extension and the depth of groundwater level in Galati in 1974 the execution of 150 observation wells for groundwater level were approved, only 110 are currently operating. In most boreholes, the groundwater level has increased; the increases are 10.15 m in 20 years;
- currently the rise of the groundwater level platform from the North-Western part of Galati has become alarming, the groundwater is no longer drained because of the clogging of the valleys, they are looking for other collectors, heading east, towards Lake Brates;
- in the recent months the ground water that accumulates at the foot of the slope, rather than turn to cliffed shore Brates, seeks its outlet to the south, where there are important buildings including the Museum of Art, University, Polytechnic Institute, State Theatre, the Prefecture, etc., monumental buildings founded on unconsolidated yellow loess, which, by dampening may create uncontrollable effects on the structure of their resistance. Already there were two landslides, in the Public Garden area-the casino and in the Fire Unit area.

The underground sewage works were financed by PHARE.

Considering the problems discussed above and the fact that the area is an "area of potential risk, "disaster generator, which can endanger buildings, architectural monuments, not in the least, human life, for the works of decompression of the groundwater level by a specialized company are required as well as a study on this issue.

### Green Spaces

The green areas recorded at the local public administration, measure 3048 hectares in the Local Council Administration, 3 ha in the Lower Danube University administration and 5.7 ha at SNCFR - Galati Region administration. Cadastre and Land Registration Office recorded 1.81 ha of land for yard and garden, leased according to the Law 112.

### Problems

- The issues that arise are related to the maintenance of existing green places and develop new areas of green places (parks) in town.

## 1.2. The Local Economy

Galati, an international trading city in the past when various goods were traded by water, not only in Romania but also in the neighbouring countries of Romania, became, during the '60s, a heavily industrialized city. Currently, the city is characterized by the dominant presence of the steel industry represented by the steel plant "Arcelor-Mittal, steel mill and factory wire, nails and chains, and the shipping industry - Damen Shipyards, MENAROM, and Institute Elnav Galati naval research and design, ICEPRONAV, and businesses in the food, textile, construction domain, etc.

### 1.2.1. Metallurgy - Arcelor-Mittal "Galati

Founded in 1961, the industrial complex covers an area of 1594 hectares and comprises the largest share of the workforce in Galati. Since November 2001, the majority of shares in the steel plant belong to "Arcelor-Mittal" Galati. This plant is the largest steel producer in Romania and the second largest in Central and Eastern Europe. Arcelor-Mittal is a fully integrated steel plant, located in the west of the city, which primarily produces flat products (thick galvanized plate, hot and cold rolled strip), and blooms for rolling tiles and welded pipes of a large diameter, with a capacity of 10 million tonnes, representing 70% of the national production of steel and 95% of the Flat.

The steel plant "Arcelor-Mittal" dominates the domestic market, an estimated segment of 95% of the domestic market and exports goods which represent 55% of turnover.<sup>1</sup>

Plant activity is about 5% of Romania's gross domestic product and 25% of the country's gross domestic product is directly or indirectly affected by the work of Arcelor - Mittal. Due to the volume of its work, Arcelor - Mittal may transmit negative or positive effects.

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<sup>1</sup> Local Agenda, op.cit., pp. 20-23.

#### 1.2.2. Shipbuilding industry - SC DAMEN SA

Galati Shipyard is a leader in the shipping industry for more than 100 years. The site is located on the Danube River between the city and the Free Zone. Since 1991, Galati shipyard became a joint stock company having engaged in the design, construction, repair and sale of ships. In March 1999 the majority stake was bought by the Damen Shipyards Group in the Netherlands.

#### 1.2.3. River navigation and port activities

The port complex consists of the Port Docks, the Port of New Basin, the Old Commercial Port and the Ore Port. Galati is the largest fleet of the Danube fleet. Transport on inland waterways, carried approximately 60% of the national transport. In 2001 there were transported by inland waterways Galati 8231.4 thousand of tonnes of goods, the largest shares in the quarter IV/2001 being held by the following groups: raw and processed minerals, iron ore, steel, metal products, cement and lime, prefabricated building materials, grains and solid fuels.

The Ore Port, Romportmet SA, originally created to serve the Steel plant, is a specialized service provider, its main activity being the unloading of raw materials in bulk. The Port Docks, specialized in loading and unloading of general cargo, has an operating potential of around one million tones annually.

The New Basin Port is the largest maritime Danube port, located near the Free Zone, near the border with Moldova and Ukraine.

#### 1.2.4. The Naval Institute of Design

The most important naval research and design center in Romania, ICEPRONAV SA, is located in Galati. Founded in 1966, the institute has a large design department of ships, marine structures and equipment, and a small production department, with opportunities to test models and prototypes.

In design, the institute operates with an integrated computer system for the shipping industry (TRIBON) used by all Romanian sites and still over 300 users worldwide (ICEPRONAV is today, in terms of its capacity,

the fourth specialized institute in the world).

#### 1.2.5. Agriculture

Agriculture is one of the most important activities for the Southeast region, and also in Galati. Representative for this area are the crops: wheat, corn, barley, sunflower, soybeans, grapes (Nicoresti vineyards are famous for wine).

The total area of 446,632 ha in the county:

- agricultural area is 358,754 ha, of which:
  - arable land: 292.229 ha
  - vineyards: 20 368 ha
  - pasture: 43,580 ha
  - hay: 598 ha
  - orchards: 1979 ha
- forests and other lands of the forest fund: - 36.273 ha
- water and ponds: 13,019 ha
- other areas: 38,586 ha

Out of 24,642 ha, 12,800 ha is represented by the agricultural area.

In the city, there are processing units of wine, milk, milling and baking, meat processing, production of concentrated feed. Most of these companies have been upgraded or they are in progress of upgrading, the result is an image-enhancement products and a more courageous approach to markets. However, the lack of livestock farms affects the selling price of finished products for milk, meat and feed concentrates. The lack of packaging manufacturing industry up to the European standards has consequences, the food products were challenged not only in volume but also in appearance by the imported products from the other parts of the country.

#### 1.2.6 Tourism

Tourism is an important potential for Galati, not so much through the unused heritage tourism, but especially by the function it might have in attracting and redistribution of tourist flow components. Much of the international tourist flow goes to the Black Sea coast and the Danube Delta Nature Reserve, but the tourist may visit Galati.

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Galati has monuments and archaeological sites, nature reserves, many architectural monuments of the 19<sup>th</sup> - 20<sup>th</sup> centuries, churches and religious assemblies from 18<sup>th</sup> - 19<sup>th</sup> centuries, and numerous urban parks with a dendrology value.

The Travel Fund provides opportunities for the fish stock (ponds, the Prut and the Siret rivers, the Lake Brates, the Danube River) and hunting resources (the Prut, the Siret and the Danube nature reserve).

The Garboavele Forest Reserve is located at 17 km distance from the city of Galati. Covering about 100 hectares, the reserve is surrounded by locust trees on an area of 350 ha. The fluffy gray oak, the oak and hawthorn shrubs, dwarf almond and pigeon are dominant. The forest hosts over 470 species of flora, including a number of rare species: iris, spring Adonis, Romanian peony, or the shadow rabbit and the like. In the Valley of the Garboavele forest there is a specific area of swamp vegetation

Galati has theatres with tradition and prestige, such as "Fani Tardini" Theatre, "Nae Leonard" Musical Theatre, "Gulliver" Puppet Theatre.

Among the city's attractions we include the museums, memorial houses, monuments and fine arts assemblies in memory of personalities from the local or national significance, in remembrance of moments or events in the life of the city (the bust of Al. I. Cuza Metal sculpture camp on the Danube promenade, the statue of Mihai Eminescu, the dockers' statue, the Museum of Modern and Contemporary Art, the Museum of History, and many other sights).

You should not forget the Old Commercial Port, which restored and landscaped, would be an extension of the promenade area of the Danube promenade and a gateway for domestic and international tourism, a huge potential for the tourism development in Galati.

### 1.2.7. Free Zone

In Galati there is one of the sixth free zones in Romania. The Free Zone existence implies an advantage for the city; it was created to promote foreign trade and attract foreign capital to a better enhancement of resources and introduces new technologies.

The Free Zone is located in the east part of the city, with access to the Danube. This position provides the following advantages: access to the

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water, road and rail transport.

The most important feature of Galati is its location in the heart of trans-European waterway Rhine-Main-Danube. Increasing the attractiveness of the area is subject to the development of port and port-industrial areas of free zones and transport routes patency territory for European interest, which involves the completion of roads - bridges for crossing the river Danube, proposed in- Braila, Galati, Tulcea area - completing the road corridor in our country, as expected by the Black Sea Economic Cooperation.

### Problems

- The imbalance between the various local industries. While the metallurgical industry has contributed over three quarters, the other branches are underrepresented in the economic outcomes.
- The volume represented the importance of local taxes payment and debts to the central institutions, through a steel industry in the local economy.
- The contribution of foreign capital is insufficient in the privatization of medium and large enterprises.
- The number of SMEs is not large and diverse to be a great alternative in restructuring the industry. SMEs support and the conditions for the establishment of new SMEs, although it has a legal basis is not enough to propel this sector of the economy.
- Most economic capacities are lagging behind in terms of technology, which it is reflected in efficiency and competitiveness.
- Large number of unused installed capacity
- Restrictions on activities of research centers at "Dunarea de Jos" University, specialized institutions (ICEPRONAV, ICPPAM, Research Institute of Fish and Wine Research Station Targu Bujor), although their potential is very important for the domestic needs and the international collaborations.
- Economic high-tech branches (computer, electronic communications networks and radio stations, small boats), which have a high added value or that attract female workforce (leather, textiles, shoes) - are absent or scarcely represented in our economy.
- Restriction of activity and unemployment in most institutions.
- Not integrating properly in the national and international transport network.

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- With regard to tourism, the following have to be taken into account:
  - Lack of promotion of image and tourism potential of Galati;
  - A faulty management and marketing in tourism which does not attract tourists;
  - Relatively low standard hotel services below the Western standards' tourists expectations.

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\*\*\* *Local Agenda 21 - Local plan for sustainable development in Galati, Galatz, 2002.*