

SOME PARTICULARITIES ON THE DURABLE DEVELOPMENT OF THE CITY OF ARAD

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ABSTRACT: In order to maintain or even to contribute to the improvement of the quality of life, of the environment and of health, it is necessary to apply the principles and strategies of durable development, but also to elaborate the ways and methods of stopping the degradation of the environment, the implementation of environmental policies and strategies in all the fields of the economic activity.

In what concerns the urban and peri-urban area of the city of Arad, we notice two stages of development: the one prior to 1990 and the one after that timeline, these two being differentiated due to the economic evolution of the county.

Prior to 1990, the economy of the county of Arad has been dominated by the chemical industry, the machine tools industry, the textile industry, the wood processing industry, and the food industry. Most of these establishments would also cause an intense pollution of the environment.

After the 1990s and up to present, a great part of the industry of Arad has been redefined, given the emergence of activities with a low pollution potential that have been placed outside the city, at a distance of circa 2 – 2.5 km West, on the industrial platform. The impact of these industries on the environment is thus insignificant.

A negative phenomenon which we have to notice, regarding the placing of the new industrial area outside the town, is the granting of space on agrarian fields with a great productivity potential. This aspect is worrisome, having no connection with the durable development, but all too often the city officials create such type of "compensations" out of the desire to develop the local economy. Thus, major unbalances may appear in what concerns the rational allocation of natural resources and they may have a significant and long-term impact on the environment.

Keywords: durable development, environmental impact.

INTRODUCTION:

The concept of "durable development" has been defined in 1987 by the World Commission on Environment and Development (WCED), according to whom "the durable development, necessary for meeting the needs of the present generation, must be based on clean non-polluting technologies, which do not compromise the needs of future generations", in what concerns the natural resources and the quality of the environment. The goal of durable development is the long-term ecological security of the planet.

According to these above-mentioned ideas, past and present generations have used, in their development process, technologies that are more or less polluting, thus affecting the quality of the environment (air, water, soil) without the agreement of future generations.

Starting from the alarming reality of the present days, the main principles of durable development must be: the destruction of the soil must not exceed its capacity to regenerate; the deforestation must not outpace the rhythm of natural regeneration; CO₂ emissions must not overcome the natural capacity of carbon to fixate; fishing activities must not overcome the regeneration capacity of the fish species in their natural environment; the disappearance of species must not exceed the natural rhythm of their evolution. One may add to all of the above-mentioned, the necessity to eliminate the waste of raw materials, fuel and energy by using new and advanced clean

technologies that can fully and complexly exploit the non-regenerable natural resources.

The present paper approaches the issue of durable development in the city of Arad from the perspective of the disappearance of old specific industries and the emergence of other industrial activities, which are less polluting but which imply the use of land, most of it having a high agricultural productivity and which has been designated by the local administration for these specific new activities.

MATERIAL AND METHOD:

The economy encompasses, by its nature, activities connected to the natural and social environment. By analysing the connection between the two we may notice that, in most of the cases, one reckons the economic benefits of the development of a territorial profile, thus not making it possible to quantify its consequences on the environment and on society.

In order to emphasise this economic impact on the environment in the city of Arad, we have analysed the urban development plans of the present days, keeping in mind the decisions of the administration regarding the allocation of certain areas for the placement of these new activities, a fact which has led to a productive soil "consumption".

RESULTS AND DISCUSSIONS:

Anthropic Factors which Influence the tourist Activity

In what concerns the urban and peri-urban area of the city of Arad, we can distinguish two stages in the tourist activity: one prior to 1990 and the one after that timeline, these two being different due to the economic development of the county.

The Lost Industry

Prior to 1990, the economy of the county of Arad was dominated by the chemical industry (the former Aggregate Works of Chemical Fertilizers Arad), the industry for the construction of machine tools (the Railcar Factory), the textile industry (UTA, the "Tricol Rosu" and TEBA factories), the wood manufacturing industry (the Aggregate Works for Wood Manufacturing), the food industry (the "Refacerea" can factory, the Alcohol and Yeast Factory). A major part of these facilities have also greatly polluted the environment.

The Aggregate Works of Chemical Fertilizers Arad – although it was placed outside the built-in area, at about 3 km East of Arad - have represented the greatest polluting area for years, especially due to nitrogen oxides emissions in the air and soil, but also because of waters high in ammonium and nitrates.

The malfunctions caused to the population's living environment from the "Fox's Tail" are well known, due to the predominant south-eastern winds which would send the pollution towards the city or would spread it across the agricultural fields nearby.

The closing of the Aggregate Works has led to the halt of air pollution, but the traces of pollution (like nitrate ions) have remained in the soil. Analyses made by APM Arad, performed before the closing of the Aggregate Works of Chemical Fertilizers and after 1990 (when it was finally shut down), show that the soil pollution phenomenon has been diminished.

A similar effect occurred regarding the water pollution:

- after the ceasing of activity in the Aggregate Works, the pollution of the surface waters has stopped, especially on the Mures River, which has suffered for years from the major impact of unorganised overflows (high in ammonium ions and nitrates), leading to extremely high rates of fish mortality;

- at the same time, however, there was a lingering of the pollution in subterranean waters, due to the damage of the transportation pipes caused by the solutions used in the technological process; this pollution localised at the first phreatic level, following the flowing direction of the subterranean stream and endangering the captation waters of the city of Arad.

The observations performed during the timeline 1990 and up to present lead to the conclusion that the advancement of the polluting wave westwards has diminished and so did the concentration of polluting agents in subterranean waters.

Presently, the former Aggregate Works of Chemical Fertilizers Arad is disabled as a construction *per se*, its former facilities serving other purposes, with a low or non-existent polluting potential and a low negative impact on the environment. Thus the pollution of the soil and of the subterranean waters is greatly

diminished and the only thing remaining is "a historical pollution", whose effects linger up to present.

Another source of environmental pollution which is no longer present was the Aggregate Works for Wood Manufacturing (CPL), which, situated in the built-in area of the city, was intensively polluting the air with dusts coming from wood manufacturing. The phenomenon took place on a relatively large area and was amplified by the dispersion of dusts into the atmosphere and by the wind direction in the city of Arad. There were days when the dust pollution could even be felt in the city centre. Today, most of the CPL Works has been disabled, while the department still operating has no polluting potential.

Other sources of pollution of the urban area of Arad which have disappeared after the year 2000 were the UTA, "Tricol Rosu" and TEBA factories, which, although not having a great pollution potential, were creating major inconveniences to the inhabitants or to tourists due to the noise and different types of dusts generated, the intense traffic caused by the transportation means of the personnel, the great water demand for the industry, etc.

During the past few years, the Railcar Factory has also diminished its activity, despite the fact that it has once been the star of industry in Arad. During 1970-2000, when the production was at its peak, it has generated an important impact on the environment – due to the consumption of water for industrial purposes and the dust generated – being also placed in a neighbourhood inside the city of Arad.

The Alcohol and Yeast Factory followed a similar path (today its buildings are historical monuments of patrimony). Although it was placed at the outskirts of the city, the factory generated bad smells due to the molasses used in the technological process, smells that reached the central area due to air currents. The phenomenon was amplified due to the increase of the production capacity after 1970. Presently, alcohol is no longer being produced, so that this kind of pollution no longer exists.

In what concerns this type of industrial objective, in the Gai neighbourhood area, in the 1980s, a food industry platform has been built, which included a sugar factory, a slaughtering house, a beer factory, which, in their turn, had a negative impact on the population especially because of the unpleasant smells that these factories generated.

Nearby this area, at "Ceala", there functioned a pig farm together with a slaughtering house, with around 30.000 animals. The farm was also being perceived as highly inconvenient for the city, because of the bad smells generated by the dejections deposited nearby and thrown into the sewers, which then carried them to the Mures River.

Another activity which has considerably diminished until present day, but which has created environmental problems, was the oil exploitation industry. Before 1990, there were over 1000 oil drills in the Turnu – Pecica – Bodrog areas, at about 8 to 10 km West of Arad. The pollution phenomenon was major and it manifested on agricultural fields, drains and the Mures River, due to oil and saltwater overflows. The closing-

down of most of these exploitations led to the restriction of the pollution phenomenon to more reduced areas.

In what concerns the pollution of environment factors, this type of “past” has had important repercussions on the tourism in Arad as well, given the fact that the city was surrounded by pollution, or even lived with it, because the factories were situated in central areas. The closing-down of these industries and the restructuring of the economy of Arad has led to an environment that is more human-friendly and to a new approach.

In the county of Arad, the main activity which has damaged tourism was the extractive industry, namely the explorations and exploitations of uranium and of non-ferrous ores and metallurgy. These have left behind an important number of shortcomings: waste dumps, mine galleries, dumps from the Luncoșoara preparation factory, which, after the ceasing of these activities, were left in the flowing waters, leading to major inconveniences in what concerns the lifestyle of the inhabitants and also regarding the tourists who wanted to visit the respective places.

The waste dumps worth mentioning, due to their exploitations and exploration of the uranium ores, are situated along the valleys: Rănușa, Milova, Conop, Bîrzava, Odvoș, which are all valleys with a great tourist attraction. We have to mention that 30 years later, in Bîrzava (in 1992), an open-air uranium ore deposit has been found, covered by a concrete board, almost at the border with the urban area. Presently, this deposit no longer exists, but it represented a risk for the inhabitants for 30 years.

We should also mention the waste dump of the uranium ore from Rănușa, which remained in „the opening of the gallery” and which required high financial efforts to be stabilized, especially because the area is connected to the tourist area of Sebiș – Dezna – Moneasa and such a site is not attractive to tourists.

In the ethnological and folkloric area of Hălmațiu - Hălmațel – Luncoșoara we discover the complex tailing ore deposits (Cu, Zn) from Brusturi and the Decantation Pond resulted from the Luncoșoara preparation factory, situated upstream the homonymic town. To this, we add the deposits from Zimbru, Pătârș, etc.

The ceasing of the prospection activities, mining explorations and exploitations in the Arad county has not been a good omen for the economy, because the environmental “shortcomings” have remained unsolved, disturbing the economic and tourist activities in the respective areas.

The present Day Industry

Until 2014, there was a major pollution source near the city – the lignite CET Arad – placed at approximately 1.5 km north of town, with an important polluting potential especially during the winter, when it ran at its full capacity. The dysfunctions which it has created are the pollution with Sulphur oxides and dusts, the latter resulting from the ash and cinder deposits (around 65 acres), which were blown by the wind during the dry months of the year, the dust reaching

neighbourhoods in the city and the surrounding towns, depending on the direction of the wind.

After the 1990s and up to present a great part of the industry of Arad was redefined, thus new activities have emerged with a low pollution potential, which were placed outside the town at a distance of around 2 – 2.5 km west, on the industrial platform.

However, there is a negative phenomenon that needs to be addressed regarding the new positioning of the industry outside the town. The new spaces granted for industrial activity are on agricultural fields which have an extremely high productive potential. Thus, hundreds of acres of fields which would have otherwise provided food products, are out of the agricultural reach. The impact is worrying, not having any connection with the durable development, but all too often the officials of the city create such “compensations” due to their desire to develop the local economy. Hence, major imbalances are created in what concerns the rational allocation of natural resources which have a significant and long-term impact on the environment.

Nevertheless, some environmental shortcomings are still “active” because of the aspects related to the territorial planning of the city of Arad. And hereby we are referring to the old waste deposits, which have been for years the major pollution source of the city, given the fact that they were placed in the northern part of the city, both inside and outside the city limits.

Today, these sites (Poetului and Câmpul Liniștii) are closed down, but the household waste and wastes of any other nature which have been brought there in time, have remained on the same spot and will represent a great urban development issue in the future, because they hinder the expansion of the city to those areas (despite them being surrounded by houses or industrial areas). This phenomenon has a negative impact on the economy of the city.

An important aspect in the urban development of Arad has been the Arad Fortress. It has been a military site ever since its construction in 1760 and it represented an obstacle to the urban development on the left bank of the Mures River. Thus the city officials were forced to “push” the development of the city westwards, northwards, and eastwards, creating city apartments in parts of the town where there had been houses, generating infrastructure expenses and, obviously, the pollution of some areas of the city.

The problem generated by the Fortress has not been solved to this day, although there are some reconversion projects and some decisions of the Arad City Hall. The capitalisation of the Fortress would create a touristic and commercial area that, linked to the nearby lido of almost 20 acres, would be a perfect *loisir* area and would represent an important touristic location for the recreation and comfort of the inhabitants of Arad, but also of tourists.

The benefits of the city from of the Fortress would be that, unlike other “Vauban” sites, it has remained intact and would not need any major rebuilding work (see the same type of fortresses in Alba Iulia or Timișoara, which have required great rebuilding funds).

The negative Effects of some historical Pollutions

One of the negative phenomena of faulty territorial planning and inappropriate space management in the county is, as we have shown above, the household waste.

The principle that has “governed” the waste management before Romania has adhered to the European Union, was that each parish, or sometimes even a bigger village, had to possess a “waste dump” to deposit the household waste (but not solely that). Thus, the county was crowded by inappropriate waste dumps which were active for decades, generating the local pollution of the soil, the phreatic and surface waters, etc.

As a result of the policies of these last years, a coherent program of ceasing the activity of these waste dumps and closing them down, has emerged. Thus, the towns were finally “cleansed” from these infectious epicentres which have greatly disturbed the life and health of the inhabitants and have led to the damage of the aesthetics of the rural areas, which otherwise would have had a high economic potential.

This phenomenon does no longer exist today. The household waste is now collected in containers, which are being periodically picked up by a company licensed for this type of activity and who carries it to the only authorised warehouse (belonging to the city of Arad), functioning according to the norms of the European Union.

The precarious state of cleanliness of the villages could also be seen in the infestation of the village fountains, which for a long time were the villagers’ only source of water. During that period, the Romanian villages still “benefitted” from households with stable waste and dry latrines, intensively polluting the phreatic waters and, therefore, their own fountains (which were the only source of water for the villagers from those respective areas). A study performed in 1985 by the Office of Water Management Arad together with the Direction for Public Health in the county, had found over 800 locations with polluted fountains in most towns and villages.

Obviously, such a situation does not attract the economic development of rural areas, despite their many traditions and interesting customs. This was also the reason why, especially since the implementation of programs for the rural areas, a system has been introduced for the parishes and villages, which supplies centralised water and sewer and purification systems of the used waters. What is left for the villagers is to get connected to these networks in order to benefit from the advantages of these investments.

A similar situation occurred in what concerns the implementation of the road infrastructure which would ensure access to these towns. For years, the towns and villages of this county did not benefit from paved roads and this shortcoming is still present today in certain areas, the state of the roads towards the more isolated tourist areas (but with great natural resources) being highly questionable.

A county financing program began in one of these towns, making connections to the attractive tourist areas. For example, the relatively isolated tourist area

of Moneasa benefitted from the repair of the Julița – Mădrigești – Gurahonț road, which makes the connection to the DN7 Arad – Deva, thus shortening the access to the resort of Moneasa. However, a connection with Vașcău has not yet been made, although this would connect the resort to the south of the Bihor county, Alba county and the Arieseni resort. This is one of the reasons why there is a low number of tourists in Moneasa.

The positive Effects of urban Development

A positive effect on the urban planning of Arad has had the Arad-Timisoara highway, with its future connection to Nadlac and a new bridge over the Mures River.

These investments are highly important because they provide the access of the city to the Western world (the highway is connected to the Hungarian highway in Nadlac-Szeged), but also to the interior of the country. Hence, Arad, which for tourism is a transitory city, would benefit from more tourists and would have a higher degree of hotels’ and lodgings’ occupation.

The traffic belt of the city has solved the issue of heavy traffic in the city itself, thus lowering the dust, exhaust pipes gas and noise pollution level and it gave the opportunity of a more fluent traffic. It is obvious that the full removal of pollution is out of the question, since there has been an increase in the number of cars; nevertheless, their pollution is considerably lower compared to that of heavy traffic.

CONCLUSIONS:

The study of the territorial development of Arad has emphasised some positive phenomena which have appeared as a result of the development of the new industries, but also some major ecologic unbalances, created by the allocation of tillable lands (which had a very high productivity level) to the placement of these new activities. Wanting to solve a major issue, that of the emergence of several productive units outside the built-in area of the city, the city officials have given away large agricultural fields to the placement of the new industrial activities which have emerged after 1990.

This solution contradicts the principles of durable development and is directly linked to the optimal allocation of natural resources in the immediate perspective, because it is against the principles of the protection of the environment and it directly contributes to the disruption of the food base for the inhabitants of the city.

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