

THE ROLE OF LOCAL SOCIETY IN DEVELOPING ENVIRONMENTAL CULTURE: THE CASE OF VÁC (HUNGARY)

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Abstract

The role of local society in the development of the environmental culture of cities is investigated in this paper, based on general models and on a survey that involved institutions and inhabitants of a Hungarian middle-sized town (Vác). Inner and outer factors forming the environmental culture of cities are analysed. The role of the size of cities in urban environmental protection is presented. The natural, social and environmental specifics of the town of Vác, with a population of 33,000, are analysed from the aspect of environmental protection. Environmental consciousness and the willingness of residents to take actions to improve the environment of the town are assessed using the results of a questionnaire survey.

Shrnutí

Role lokální společnosti v environmentální kultuře na příkladu maďarského města

Práce se zabývá rolí lokálního společenství v rozvoji kultury životního prostředí měst na základě obecných modelů a také na dotazníkovém šetření provedeném v institucích i mezi obyvatelstvem středně velkého maďarského města (Vác). Jsou analyzovány vnitřní i vnější faktory, které tvoří environmentální kulturu měst. Je prezentována role velikosti měst v ochraně životního prostředí ve městech. Z aspektu ochrany životního prostředí jsou analyzována přírodní, sociální a environmentální specifika maďarského města Vác (33 tisíc obyvatel). Ekologické uvědomění a ochota obyvatel města přijmout opatření na zlepšení životního prostředí ve městě je hodnoceno na bázi dotazníkového šetření.

Keywords: *models, environmental protection, environmental consciousness, local society, urban development, Vác, Hungary*

1. Introduction

In the former socialist countries that joined the European Union, the quality of the urban environment in general was significantly poorer than in the more developed Western European countries at the time of joining the EU. Although only seven years have passed since the accession, improvement in the quality of many towns can be observed already in Hungary. In this change, a significant role was played by the approach that was represented by terms such as “green towns” or “sustainable towns”, at the time of the pre-accession negotiations. Town regeneration in the professional literature discussing urban development includes the aspects that we regard as the pillars of sustainable development: economy, society and environment. According to Roberts and Sykes (2000), urban regeneration is a general and integrated approach and measures to solve urban problems and to improve economic, physical, social and environmental conditions in the

long-term. Apart from financial support, the views and willingness of town leaders and inhabitants to co-operate in the solution of environmental problems, largely contribute to the development of a healthier and liveable urban environment.

Hungarian urban geographic research focuses on the urban rehabilitation of large cities (primarily Budapest) and the researchers (e.g., Kovács, 2005; Egedy et al., 2005; Mikle, 2005) mention the role of environmental consciousness of the inhabitants in urban development only in passing.

This paper focuses on analysing the environmental consciousness and willingness to co-operate of the local society regarding environmental targets, in other words the environmental culture of towns. Apart from analysing general issues, the main results of a survey conducted in a middle-sized (33,000 residents) Hungarian town (Vác) are presented.

2. Aims

In the first place, internal and external factors influencing the environmental culture of towns are analysed, on the basis of general models and the role of the size of towns on the quality of the urban environment. Then, natural environmental and social conditions and changes in the quality of the environment of Vác are presented, factors that potentially influenced the development of the environmental attitudes of the inhabitants.

Subsequently, relationships between the local government, functioning civil organizations, the dominant industrial company from an environmental point of view, and the only college in the town (Apor Vilmos Catholic College), are characterised on the basis of interviews regarding the development of the town's environmental culture.

The environmental consciousness of the inhabitants and their attitudes towards solving the environmental tasks of the town, are presented using the results of a questionnaire survey.

Finally, the controlling role of residents and green organizations in local environmental political decisions related to investments of great environmental risk, is assessed, together with the advantages of partnerships in town development.

3. Methods

A theoretical model of the internal and external factors influencing the environmental culture of towns is established and, based on this, factors dependent on and independent of town size are analysed.

Studying the literature, statistical data and the results of official investigations, the most important natural and social conditions and the environmental status of the town of Vác are analysed.

Interviews were carried out with representatives of the local government, major civil organizations, companies and the Apor Vilmos Catholic College.

The environmental consciousness of residents was studied through a questionnaire survey. Some 450 inhabitants of Vác, 18 years of age or older (including college students) were contacted in 2009 with a questionnaire containing 33 questions. Of these, 439 questionnaires were usable. The survey was carried out by a random walk method. The population of Vác over 18 years of age was included in the survey, categorized by gender, age and education. To control

this, data from the census in 2001 were used. Of the 33 questions, two were open-ended and 31 were closed. At the beginning of the interview, questions representing independent variables, such as gender, age, qualification, residential area, location of flat/house and the method of sewage drainage, were asked. In the case of dependent variables, questions related to the environment were asked. The dependent and independent variables were compared using Excel software (Windows). Relative frequencies of responses were illustrated in diagrams for comparison. About one half of the survey questions directly address the aims of this paper and only those are therefore assessed.

3.1 Model of factors determining the environmental culture of a town – with Hungarian specifics

Urban environment culture is determined by numerous factors both inside and outside the town itself. These factors are changing continuously and affect the inhabitants and institutions of the given town; therefore, it is natural that the environmental culture of the town changes as well. Factors that we regard as external in this process are presented in Fig. 1.

In the broadest sense, the global environmental state of the Earth and the environmental state of the given country, together with the information on them, affect directly and indirectly the inhabitants and via them the life and functioning of towns. Spreading the information on global climate change, for example, has triggered a process that inspires institutions and inhabitants to manage and operate buildings in a more energy saving (efficient) way. For this, of course, financial help is necessary from the economic regulatory resources of the European Union, especially a careful application of subsidies to rightful efforts. The environmental policy of the European Union succeeds via the legislation, and the supportive system of member states and the country's legislation (acts and government decrees) naturally affect all of its towns. Most people become interested in extending their knowledge on the environment within the framework of institutional education. In Hungary, the urban environment-related knowledge is acquired by pupils in geography lessons taught at elementary and secondary schools, but not in detail due to the low number of lessons.

The general state of the environment and the environmental culture of the country affects the life of the town in both direct (via experience) and indirect (media, Internet) ways. The immediate surroundings of the town influence the development of environmental culture via the experience of inhabitants (with respect to attractive or to degraded nature). Civil (green) organizations (partly nationwide networks) give voice

against investments endangering the environment with increasing frequency. Such an event in Hungary was the recent blocking of the construction of a military radar station near the city of Pécs (“Cultural Capital of Europe” in 2010). Activities of the Göncöl Foundation in the town of Vác are of national significance. This Foundation has one of the longest histories among civil organizations oriented to environment protection in Hungary: with the Pro Natura prize, it has a significant role not only in the field of environmental education but in its cultural, artistic, physical scientific, journal and book publication activity. The ‘self-control’ of

large companies in environment protection affecting the environment of several towns is regarded as very important. The role of an Environmental Management and Audit Scheme (EMAS) is spreading in Hungary. Companies that operate under environmental control systems affect smaller companies and via them, for the environmental culture of towns, they are examples to be followed.

Fig. 2 represents some of the internal factors influencing urban environment culture. Those effects discussed as external factors influence town leaders, educational

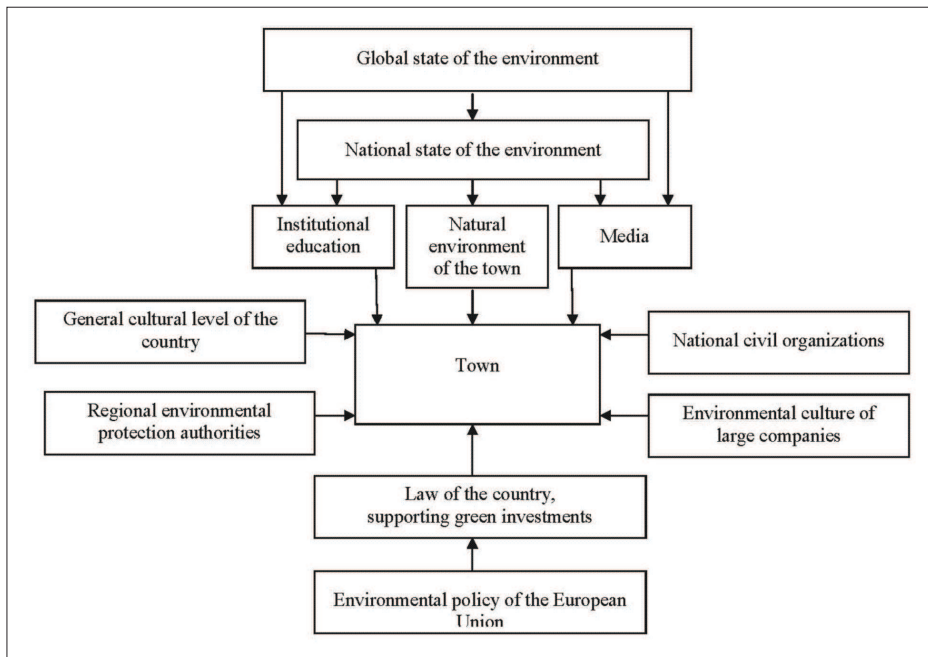


Fig. 1: Model of external factors forming the environmental culture of a town

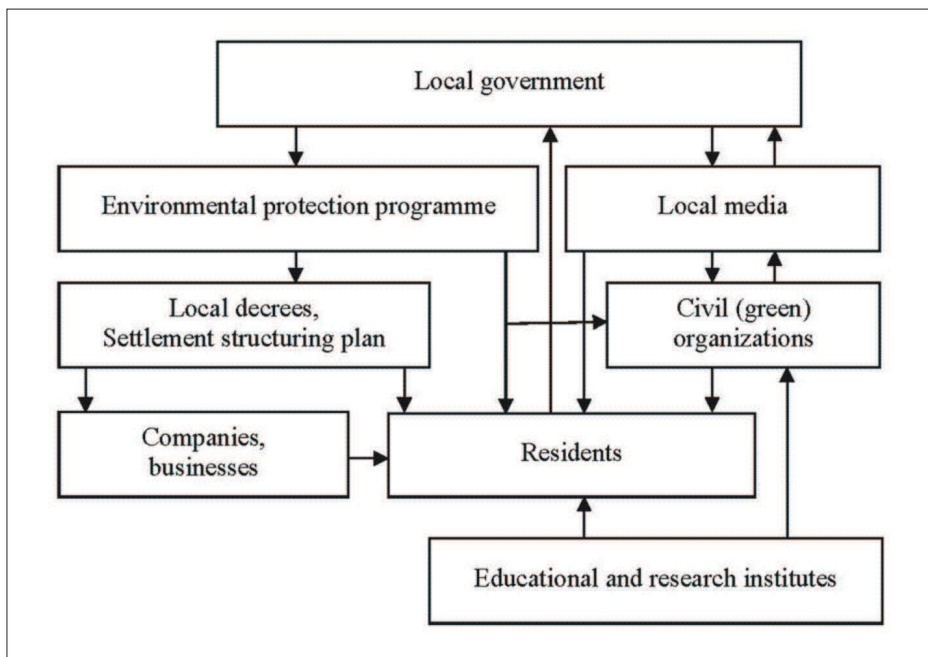


Fig. 2: Model of major factors inside the settlement influencing urban environment culture of a town

institutes, civil organizations, the larger population, companies and local media at different levels and in different ways. Operations of the local government are determined by national legislation, acts and government decrees. The tasks of local governments regarding environmental protection in Hungary are discussed in the act of 1995 on environment protection. One of the most important of these tasks is the development of an environment protection programme for the settlement, as this document, to be renewed every six years, sets middle- to long-term aims and tasks for the given town. The programme has to be harmonized with the settlement structuring plan and realization is performed by decrees of the local government. In Hungary, most settlements did not prepare their environment protection programmes despite the regulations of the act. This passivity was abandoned when the European Union negotiations started and when accession was implemented (2004), as numerous tenders were only considered if the settlement had a valid local environment protection programme. Beyond the administrative tasks, this had a significant effect on strengthening environmental attitudes.

The realization of an urban environment protection programme will be effective and successful if the local government develops co-operation and partnerships with civil organizations, inhabitants, companies and educational and research institutions in the town (Fig. 2). Particular examples for the town Vác are given later. One question is whether the size of the town influences the development and depth of environmental consciousness.

Let us examine in Tab. 1, the differences between a large city and a small town considering the environment (in Hungary small towns have populations of less than 20,000 persons, middle-sized towns have 20,000–100,000 people, and large cities have more than 100,000 inhabitants). As the development of environmental consciousness and the willingness of the population to take action in the interests of the environment play significant roles, in this paper we have to mention that public control is stronger in smaller settlements than in large cities: during a 'clean-up' action for example neighbours "speak badly" if someone's environment is untidy. The same can be observed if someone misuses containers meant for waste sorting. In Vác it is experienced that the older generation has a stronger community attitude than the younger generation.

Referring to Tab. 1, we can state that small towns are more advantageous than large towns considering the environment and Vác seems to be rather a small town than a large town.

3.2 Natural, social and environmental specifics of Vác

The town is located in Hungary, 32 km to the north of Budapest, on the left bank of the Danube River (Fig. 3). The major part of its area is at an altitude ranging from 100–120 m a.s.l., in the low and high floodplain and terraces of the Danube. The most important role in the town's life played by the Naszály Hill (652 m a.s.l.), located north of the town (for details, see later). The town is situated at the boundary of the moderately warm – moderately dry and dry climate types. Annual mean temperature is 10.0 °C in the north and 10.5–11.0 °C in the south, due to the urban heat island effect. Annual mean precipitation is 580–620 mm. Prevailing wind direction in the town is northern, northwestern.

The largest surface water course of the town is the Danube River into which two creeks flow within the town's area. The Felső-Gombás creek springs on the southern side of the Naszály Hill in the northern part of Vác; however, its bed is almost completely dry for the major part of the year due to the small catchment area. Generally it transports precipitation and cooling waters of the cement works. The other one is the Gombás creek. Small discharges of water from these creeks were polluted frequently by industrial plants operating in the area of the town in the past decade (Bíró-Kristóf, 2003).

Characteristic forests in Vác include a rosemary-leaved willow community, willow-poplar groves, oak-ash-elm groves and oak forest with lily-of-the-valley. The limestone and dolomite flora of the Naszály Hill and its high species variety richness is worth mentioning. In geographic terms, the hill belongs to the western part of the Northern Central Range (Western Cserhát) landscape, but in botanical terms it belongs to the Pannonicum floristic province due to the flora separation line extending over the Danube. Communities of Submediterranean and Pannonian character are frequent, such as open rock grasslands of dolomite slopes or the somewhat closer rock steppe and the xeromesophilous grassland community developed as a result of deforestation at the foot of the hill (Vojtkó, 2002). In a large part of the Naszály – as a result of mining – and in the built-up part of the town, no natural flora and fauna are present today. The loess wall by the entrance to the cement works, however, would require protection as it is the home of a protected bird population.

With its 33,000 inhabitants, Vác is situated near the lower limit of a middle-sized town. Its characteristic conditions resemble more the conditions of small towns. The settlement structuring plan considers Vác a small town. From an urban geography point

Condition	Large city	Vác	Small town
1. Population density	high (above 1,000 people/km ²)	(intermediate 540 people/km ²)	small (under 500 people/km ²)
2. Built-up and green areas	ratio of built-up areas is great and that of green areas is small	relatively high ratio of built-up areas, green areas are found mainly in outer parts	ratio of built-up areas is small and that of green areas is great
3. Flat supply	from luxurious flats to ghettos	good average life standard, no ghettos but poorer zones can be found	good average life standard, less number of smaller ghettos
4. Urban planning and development	difficult system with numerous parties of opposite interest	less difficult system, opposition of leaders prior and following local government elections is still present	less difficult system, smaller number of parties of opposite interest
5. Realization of the urban environment protection programme	numerous negotiations, activating inhabitants is hard	negotiations with fewer participants, mainly those parts are realized that require less investment or funds can be involved, activity of civil organizations is significant but involvement of residents is still difficult	negotiations with fewer participants, activating inhabitants is easier
6. Human relationships	estrangement, separation	good human relationships, more characteristic for older people and mothers with child benefit, relationships are made stronger by solidarity and especially by common problems people	good human relationships and mutual control of actions
7. Delinquency	frequent; destruction and aggressiveness is characteristic	rarer, less aggressive, their number was further reduced by installing cameras in the main square	rarer, less aggressive
8. Car traffic	high	especially traffic on main road 2 is high (between Budapest. and Vác)	small
9. Public transport	great capacity	urban bus traffic is significant (naturally smaller than in a large city)	small capacity
10. Energy consumption	high	small	Small
11. Industrial establishments	numerous	was higher number prior the regime change, reduced number following the political change	Few
12. Air quality	frequent exceeding of the limit values of WHO for air quality, development of smog on several occasions in the year	rarely exceeding the limit, smog is rare, greater pollution occurs along the major roads	rare exceeding of the limit, smog is rare
13. Noise pollution	significant in the major part of the town	moderate or small	moderate or small
14. Flora and fauna	species adapted to artificial environment dominate	close-to-natural flora and fauna are characteristic for the Grove, the Study Trail and the area of the Naszály	more advantageous ratio of urban and close-to-natural wildlife
15. Waste production and management	large quantity, collection is solved, recycling is variable	smaller amount, collection is solved, a complex waste management system was realized with the co-operation of 106 settlement and Vác joined the project	smaller amount, collection is solved, regional waste depositories are in operation

Tab. 1: Characteristic conditions of a large city, Vác and a small town regarding environment protection (for explanation see text)

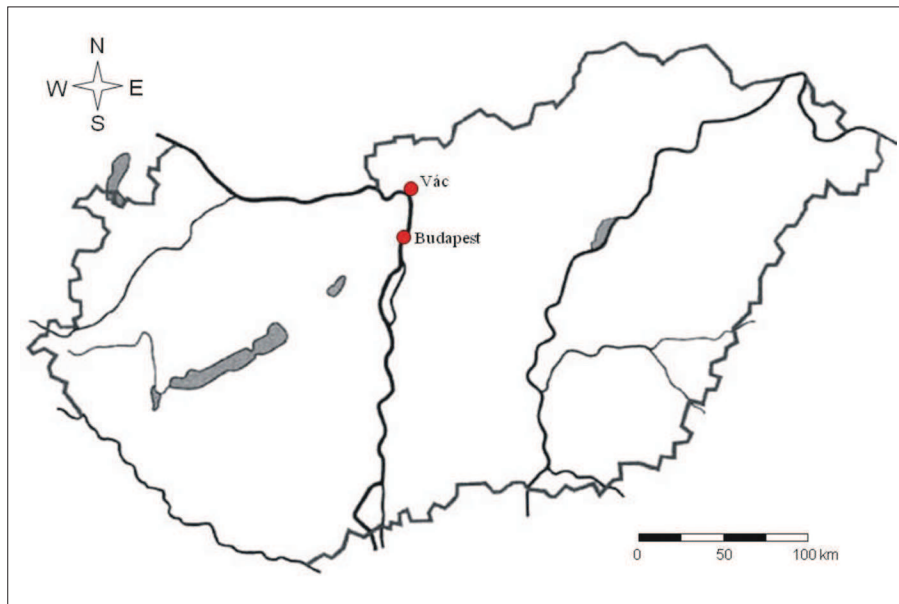


Fig. 3: Geographical location of the town Vác on the map of Hungary

of view, the town belongs to the agglomeration zone of Budapest. It has a united town structure with a historic centre surrounded by houses with gardens and panel blocks of apartments. In the outer areas, numerous weekend houses and hobby gardens can be found (Fig. 4).

Some infrastructural specifics made it stand out from the Budapest agglomeration and enhanced its position as a dominant centre of the Vác small district. The town is an administrative centre with developed industry, a health institutional network and a school network with good standards. It is an attractive destination due to its almost one thousand years of history, rich cultural life and the central role of arts. Decisive factors in attracting industrial companies to Vác include good transport conditions (the Danube River, main roads 2 and 2/A and international railway connections), closeness of Budapest and skilled labour. Based on these advantages, the town became an industrial centre (photochemistry, clothing industry, precision mechanics, electronics, chemical industry, shipyards, engine works, building material works). The Danube Cement and Lime Factory Ltd. (DCM, predecessor of the present-day Danube-Drava Cement Ltd. – DDC), operating since 1963, had a decisive role in the development of the town and its role in the town's industrial production is still significant. Raw materials are from the Triassic limestone forming the Naszály Hill, which is produced in the Sejce Limestone Quarry and appears as a significant wound in the landscape. This factory was an enormous dust releaser, especially in the 1980s, and as a consequence, Vác belonged in

the group of 12 industrial towns in Hungary with the highest air pollution, often referred to as the “Dirty dozen” (Bíró-Kristóf, 2003).

Air pollution measurements have been carried out in the area of the town since 1976. Based on this, the settling dust load in the town exceeded the hygienic limit ($16 \text{ g/m}^2/30 \text{ days}^1$) in every year until 1991, and improvement in quality appeared only after the regime change: the town average in 1990 was $29.77 \text{ g/m}^2/30 \text{ days}$ and this value was around $9\text{--}10 \text{ g/m}^2/30 \text{ days}$ after the regime change (Nagy, 2007). The severity of dust pollution increased due to the prevailing wind direction towards the town, and thus the entire town was frequently in a dust cloud. Rapid improvement at the beginning of the 1990s resulted from the reduced emissions of the new company with a more responsible environmental attitude. After 1990, dust pollution was reduced below the limit by setting a clinker burning rotary furnace into operation. In the course of the changes in the last ten years, the application of carbon dioxide reduction systems and replacement fuels intensified. Exploitation of natural resources was reduced by putting in alternative raw-materials and fuel. Thanks to the combustion gas cleaning system, emissions of pollutants are below the limit now (DDC report on sustainability, 2009).

Following the regime change numerous large factories disappeared and, as a result of the changed economic structure, several smaller enterprises were started and multinational companies appeared in the town and the service sector was developed. In this way, the

¹ KöM-EüM-FVM joint decree 14/2001. (V. 9.) on the hygienic limits of air pollution

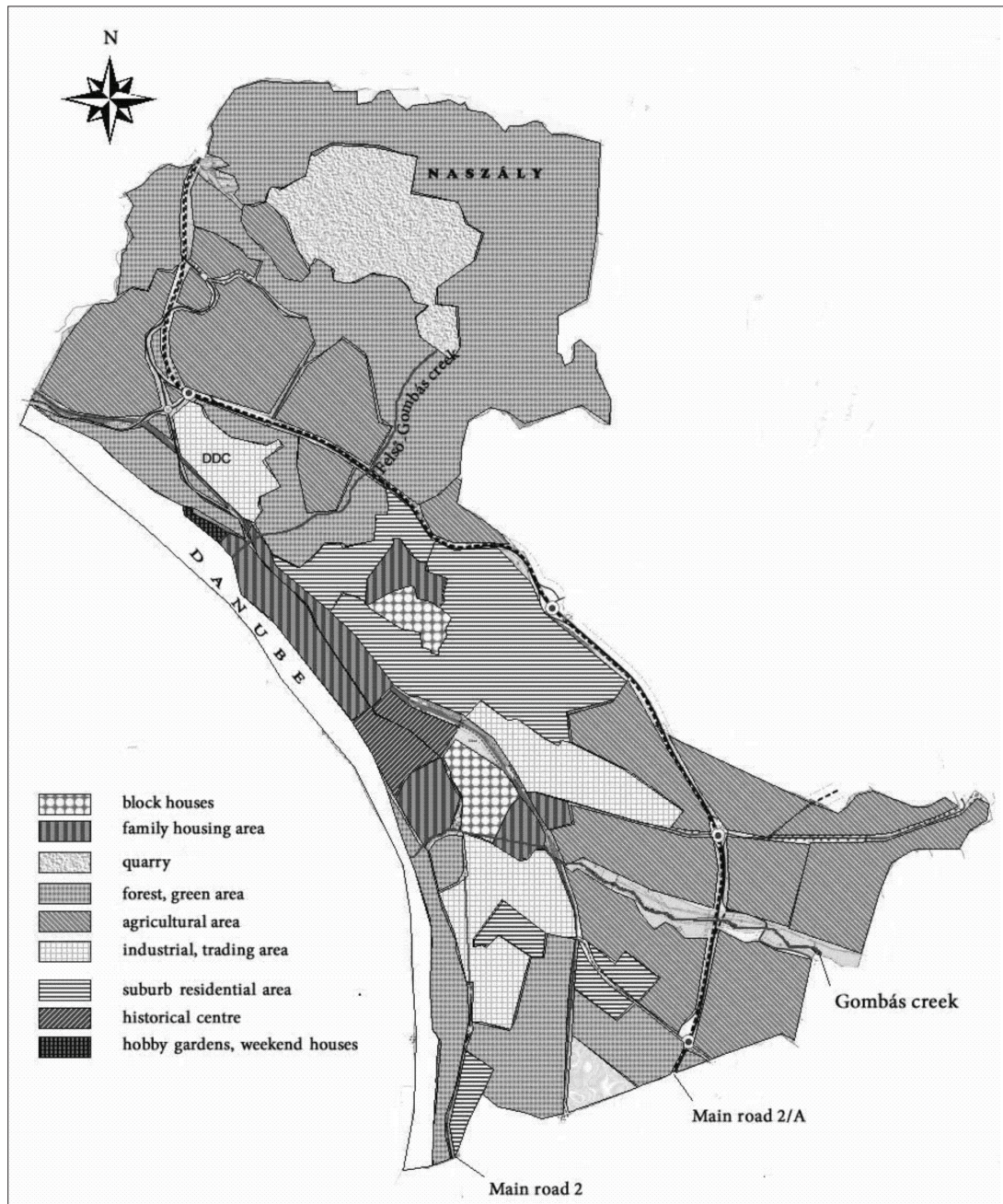


Fig. 4: Residential area types in Vác

electronic Tungsram Factory with a long tradition obtained American owners. General Electric Lighting was the new name of the company, and with significant reorganization and modernization, pollution from the factory was reduced significantly. As to chemical engineering companies, FORTE, representing the photochemical industry, was closed and the former factory area now appears in the town plans as a town rehabilitation belt. With Taurus interested in the tyre industry, Henkel founded a joint company but then it was purchased by the French company, Michelin, with major reorganization and modernization using environmentally sound technologies. Among new companies appearing in Vác, IBM is one of the major

ones. The factory produces hard disc drives in close co-operation with Zollner Ltd. The textile industry with its significant production and environmental pollution, has vanished almost completely. New Hungarian factories replaced the production of the Senior Knitwear Factory of Vác, once so famous in the 1980s.

The role of food industrial branches has been reduced significantly since the change of the political system. In the preserving industry, the only company still operating is Pacific Óceán Tartósítóipari Ltd. (Pacific Ocean Conserve Industrial Ltd). Specialized in fruit processing, it became stable on the market and develops

continually. The capacity of the milling industry has also declined in recent years, but production is still significant in Váci Malom Ltd. (Mill Ltd. of Vác). Naszálytej Ltd. (Naszály Milk Ltd.) is a mid-processor among milk processors, buying its source material from the surrounding region (Integrated Town Development Strategy of Vác Town, 2008–2013).

3.3 The leading role and relationship network of the local government of Vác with respect to environment protection

The environment protection programme of the town (valid until 2010) was prepared pursuant to the act of 1995 on environment protection, and it contains all issues that are required from Hungarian settlements by the act. These are the following:

- a) cleanliness of residential environment;
- b) drainage of precipitation water;
- c) management, collection, drainage and treatment of communal sewage;
- d) communal waste management;
- e) protection against noise, vibration and air pollution originating from the inhabitants and public services (catering, settlement management, retail trade);
- f) organization of local traffic;
- g) drinking water supply;
- h) energy management;
- i) green area management; and
- j) tasks and regulations of the settlement in order to eliminate possible special environmental risks or reduce damage to the environment.

The interview with the head of the environment protection department of the Mayor's Office focused primarily on the leading-controlling role of the local government regarding environment protection and the related network inside the town, with special regard to relationships with the inhabitants and to the development of environmental consciousness of residents. As the new environment protection programme for the next six years is under construction, questions were asked regarding the environmental prospects for the future of the local government as well.

One of the most important initiatives of the local government of the town is to prepare the Environment protection Charta for the Town of Vác and its acceptance in a wide sphere. The constitutional bases of the Charta were accepted in 2006. Companies and institutions were then approached to inform them about the idea of the Charta and to receive support from them. Following this, the Charta was signed in February 2009 and several companies have indicated a wish to join the Charta since then. Those signing the Charta agreed that realization of environmental

tasks is only possible through co-operation. Therefore, the Charta aimed at co-operation and taking common responsibility of the local government, inhabitants, and social and economic organizations in parallel for the establishment of a healthy and clean urban environment. Principles of the agreement were summarized in six points in which active environment protection, partnerships, responsibility for the environment, regional co-operation, involvement of the public and sustainability are emphasized.

The main areas of co-operation are as follows:

- environment protection and nature conservation,
- built environment and regional development,
- energy,
- transport,
- healthy human environment and chemical security,
- education and attitude formation,
- sport and leisure time; and
- local and regional tasks in order to solve and handle global problems.

To make co-operation a regular item, meetings are held annually, in which works and performance of the given year are assessed, and the possibilities, fields and ways of further co-operation are defined. At the request of the Mayor, the Climate Working Group was formed in 2009 – as a civil working group having an advisory role – aimed to increase energy saving in the town and the climate consciousness of the inhabitants.

With respect to the two civil organizations important from the town's environment point of view, the local government and the environment protection office representing the local government, have strong relationships with the Foundation for the Environment Protection of Vác Town. On the other hand, the office has had connections to the Göncöl Foundation for many years. Up to 2008, issues and problems related to environment protection were discussed with the Göncöl Foundation as they were assigned by local government with telephone counselling service. The task was taken over by the local government in 2008 and a free "green number" and "green mobile" has been operated by the local government since then: numbers can be called even at weekends and problems with environment protection can be reported. In justified cases, inspection is carried out at the reported sites. ("Green numbers" or "green mobiles" are free telephone numbers that can be called from inland). The local government is naturally in connection with companies as well, for example in controlling the environmental load of companies based on reports from inhabitants. Today, companies taking social responsibility are open to the local government; thus, it has direct connections with almost all of them, for

example via annual open days. Apart from these, the Charta signed in 2009 presents possibilities for further co-operation. Actual co-operation was realized in the environmental education programmes of the local government and the Duna-Dráva Cement Ltd. (DDC). The local government provides rooms for the events and publicizes them for the inhabitants and schools, as well as presenting them to the media.

The only college in the town, the Apor Vilmos Catholic College, only moved to Vác in 2004. The heads of the college regarded connections with the local government and with primary and secondary schools in the town as very important, however. Relations concerning culture, sport and environmental education are currently active. The “Pollen Project”, realized by the College (with support from the European Committee), went beyond the walls of the institution: it is a project with the participation of 12 towns from 12 European countries, the aim of which is to bring science closer to the community via education. In order to achieve this, seed cities are founded that support the education of physical sciences by practical methods in elementary school, by integrating communities (families, educational institutes, local governments, etc.). During the realization of the project, teachers of the college held further trainings on teaching physical sciences by practical methods for teachers of local and nearby schools over a period of three years.

Placing environmental education on a wider foundation is planned by the college in co-operation with local civil organizations for environment and nature protection. The college also has a significant role in disseminating recent scientific knowledge. In order to do this, scientific meetings are organized frequently. One of these was the teachers’ training conference entitled: “Real-life education”, with a separate physical science section. At the conference entitled “Founding and endearing scientific thinking” held in November 2008, education to an environmentally conscious life received great emphasis. In the framework of teacher training, the conference entitled “Nature and man” was held in April 2011, where numerous presentations were focused on sustainability. Apart from theory, practical methods were presented at the conferences.

3.4 Effect of the dominant industrial company in the town on its environmental culture

The Duna-Dráva Cement Ltd. (DDC) prepared its “sustainability report” in 2009. The philosophy of the company is based on the principle of sustainable development and tasks in the field of social responsibility are based on this. Their motto, “in harmony with the environment”, also reflects this, indicating that the company thinks in the long-term

and tries to develop a harmonious relationship with its environment. Their responsibility is realized at various levels of social responsibility. For example responsibility for:

- employees and the community,
- reducing green-house gas emissions,
- energy efficiency and utilization of alternative energy sources, and
- continual high standard and reliable service for the market.

With respect to social responsibility, activities outside the company are seen in the support of environment protection, health protection, sport and local cultural events. The company management regards continual communication with both the local government and civil organizations as highly important. As a result, the company developed a wide range of relationships in recent years. The company – related to its business activity – supports the development of public areas, buildings and infrastructure contributing significantly to the development of the town. Social responsibility activities can be divided between its own initiatives and events organized in co-operation with civil organizations, and to supporting civil organizations and institutes operating in the sphere of influence of the factories.

Among this wide range of activities and support, the following can be highlighted in recent years:

- activity in establishing the Gyada study trail, opened in 2004, that was important to the company because the Sejce quarry is located on the Naszály Hill, and the development and management of the environment of the hill and the Gyada meadow are inevitable. (The study trail presents natural and cultural historic values and interests in woodlands and meadows along the Lósi River at the northern foreland of the Naszály);
- tree planting was organised along the road leading to the Gyada study trail in 2007 in co-operation with civil organizations in Vác;
- publication of the tourist map of the Naszály Hill was supported by DDC, and
- the suspension bridge on the Naszály Hill was opened on 15th November 2008 (construction was supported by DDC).

The successful co-operation of the company, the town and the civil organizations is evident in the award of the Landscape Prize of the European Council, given to the Gyada study trail in February 2009. As the company is in close relationship with its environment, DDC set a target to reduce its environmental load significantly and to prevent damage to the environment. As mentioned above, by environmentally conscious production

methods and applying the best available technology, energy saving, reduction of fossil energy source usage and application of secondary basic and fuel material from waste are supported. They agreed to keep stricter limits of air pollution compared to using traditional fuels by applying alternative fuels. The quantity and quality of released material are controlled continuously by advanced technology monitoring equipment.

As mining leaves its trace in the natural environment, re-cultivation of the quarry costs around ten million forints (around 40,000 euros) every year. In cooperation with the professionals of the State Forest Survey, DDC ensures the plantation and nursing of endemic tree species in the areas excluded from cultivation. Quarry re-cultivation is always based on an ecological restoration plan.

This company operates an integrated control and quality assurance system. It applies environmentally sound technologies and takes significant social responsibility. Its target is to minimise basic material and energy consumption for cement production with the lowest possible environmental load (DDC report on sustainability).

3.5 Significance of environmental consciousness and environment protection activity of residents regarding the quality of urban environment and urban development

The following findings are based on returns from the questionnaire survey, especially those responses that refer to the knowledge of residents about the environment of the town and the willingness of the population to take action.

Almost one-third of respondents (32%) regarded air pollution as the most severe environmental problem of the town, followed by water contamination and illegal waste dumping (Fig. 5). Consideration of air pollution as a highly important environmental problem partly relates to conspicuous dust pollution from the Dunai Cement- és Mészmű (DCM) Ltd. (Danube Cement and Lime Factory Ltd.) in the past (elderly people regard the improvement subjectively and consider its extent to be less than in reality). On the other hand, car traffic has increased in Vác as well as in the entire country, and most people relate the rate of emissions to traffic. This is seen in the responses of more than half of respondents (57%) who regarded traffic as the reason for poorer air quality (Fig. 6). Despite this only around a tenth of those using their cars would be prepared to give up driving in order to improve air quality. Over one-third (34%) still regard industrial emissions (primarily the emissions produced by DDC – the successor of DCM) as the main reason for air pollution.

Respondents regard water contamination as a relatively significant problem (17% put it in the first place). This is explained by the fact that the smaller industrial factories in the town pollute the creeks running across town very infrequently, but the traces of this are visible. Talks with survey participants and information from the Mayor's Office revealed that the population of the town protested by collecting signatures against the dredging and widening of the Danube R. channel, as the increasing water transport would limit local water sport activities. In this case not ecological aspects were considered.

A question on the efficiency of sewage treatment produced an interesting result. We wanted to know the views of inhabitants on the effective operation of sewage works. Over two-thirds (67%) of respondents had no opinion and only 6% had negative opinions regarding the operation of sewage works. These data do not justify the mistrust of inhabitants considering the operation of the sewage works: improvement in the quality parameters of treated sewage water is clear compared to the 1980s. The reason for this mistrust is probably the former bad odour of the treated sewage released into the Danube River, before the reconstruction. Improvements in sewage treatment are basically the result of developments completed in 2006 in the sewage works. As a result, no pollution enters the Danube R. from the sewage works today – if they operate properly.

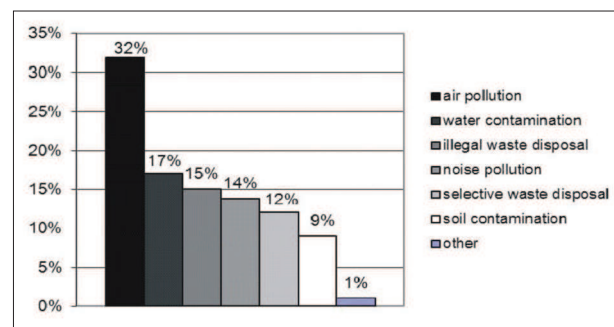


Fig. 5: Urban environment problems regarded by residents of Vác as the most severe

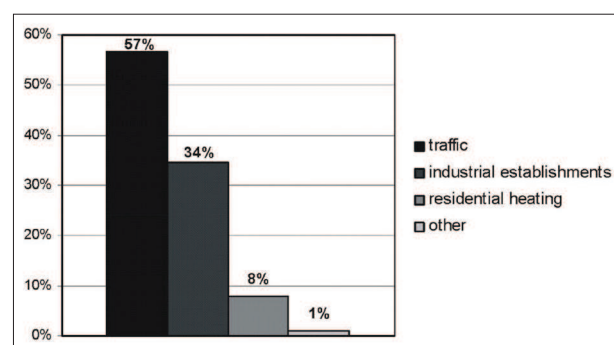


Fig. 6: Frequencies for "What causes the greatest air pollution in Vác?"

Several questions studied the knowledge and willingness of the inhabitants to take action regarding wastes. As an example: "Have you heard that a new regional waste depository is going to be established with the co-operation of the town and other settlements?". Although more than three-quarters (77%) of replies were 'no', most of the questions related to wastes received positive replies. Collection of organic and hazardous wastes and participation in selective waste collection were covered by this set of questions.

Firstly, we consider the collection of organic materials that is made possible by the construction of a regional waste depository. Almost half of those answering the questions: "Is there a need for selective waste collection? Would you take part in it?" stated that there is a demand. However, just over a quarter of them would take part in it. This corresponds to national environmental consciousness surveys: the intent is there, but acts are frequently missing (Cognitive-WWF Ökobarméter, 2005). O'Connor et al. (2002) and Yarnal (2003) pointed out that acts related to environment protection are enacted most often if the individual can benefit from them and if no expenses are involved.

A similar result was obtained for the collection of hazardous wastes: 64% of respondents consider it beneficial, but only 28% would take part in it. It is positive that a high proportion of the population takes part in selective waste collection. At the national level, TNS Hungary Ltd. Carried out a representative survey in 2008 involving 1,005 people. This survey revealed that 52% of respondents collect waste selectively. Another representative survey involved 1002 people and revealed that 54% of them collect waste selectively (TNS Hungary, 2008, 2010). In Vác, 68% of respondents take part in selective waste collection which is relatively a high rate compared to the national level.

A subsequent set of questions intended to examine the relation of inhabitants to events and activities associated with environment protection. In Vác, a wide variety of programmes, actions and calls is associated with environment protection thanks to the work of local civil organizations. However, two thirds of respondents had never taken part in such events and 17% take part only rarely, 10% replied with 'yes' and 5.6% take part in all events (Fig. 7).

What can be the reasons for this response? Let us review the offered events. The local government and civil organizations organise several programmes related to environment protection and awareness for the inhabitants throughout the year. These can be

grouped into the following themes: illustrious calendar days, healthy lifestyle, saving, conscious purchasing, and making the urban environment cleaner and tidier. The ratio of participants exceeds the average low value only in the case of events related to healthy lifestyle (including mass sport events). Passivity is mainly explained by everyday engagements (work, second job, travel to Budapest, etc.) and thus lack of time. These results are not encouraging because events are also included that show responsibilities of inhabitants towards the environment.

The following questions were aimed to examine opinions about the success of environmental activities of the inhabitants and the local government (Figs. 8 and 9). Some self-criticism of people can be respected as they regarded their own activity less successful than that of the local government: one quarter of respondents chose the "poor and very poor" response, and only two thirds of them regard it as „average" (Fig. 9). Thus, based on the opinion of respondents, participation of the population in events related to environment protection can be regarded as low. This is in line with responses to questions regarding participation in events related to environment protection.

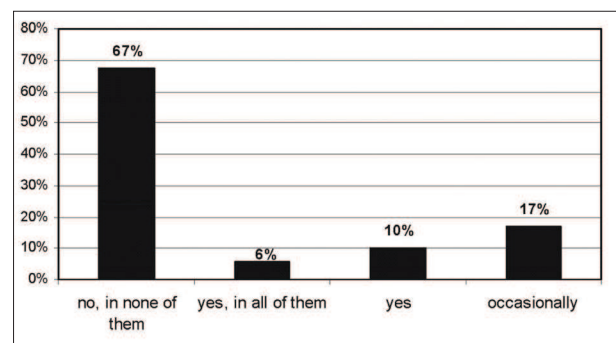


Fig. 7: Willingness of Vác residents to participate in programmes related to environment protection organised by local government and civil organizations (Do you take part in events and programmes related to environment protection?)

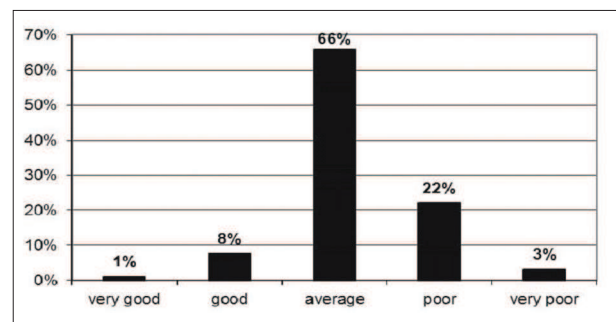


Fig. 8: Frequencies for the question "How do you regard the activity of residents considering environment protection?"

Local government received better scores: only 11% of respondents regarded the local government as passive and 17% voted for the good and very good category (Fig. 9); in total, the opinion of respondents is slightly positive.

Finally, suggestions were sought for how to improve the state of the environment in the town. The relative passivity of the population is seen in the fact that 158 (36%) of 439 respondents had no suggestions. Somewhat less than one in five (16.4%) suggested the extension of selective waste disposal and the same proportion (16.8%) considered prevention of littering public areas as important. Further suggestions were very wide ranging, and only replies related to the reduction of air pollution can afford some basis (better mass transport network, extension of bicycle routes, prohibition of cars in the town centre, in total 15% of respondents) for the local government in considering investments.

4. Conclusions: partnership or opposition?

The environmental quality of a town is influenced by factors outside and inside the town. Global, regional (European Union), national and immediate natural and social environments of the given town all affect the environmental culture of the local society. In creating a liveable urban environment, however, the local participants are decisive: local government, civil (green) organizations, dominant industrial companies and inhabitants. In the town presented as an example (Vác, Hungary), environmental awareness of inhabitants is better than the national average. In absolute terms, however, those who are willing to actively participate in improving and developing the environment in the town are in the minority.

The question arises whether inhabitants and civil organizations should put emphasis on control regarding the decisions of the local government related to environmental protection.

According to national and international experience, the population has most direct connections to the civil sphere as civil ("green" in our case) organizations are formed by organising environmentally conscientious citizens. Less active inhabitants also often accept the opinion of civil organizations in environmental issues and their opposition to economic companies is also frequent, as they – according to their views – carry out or want to carry out activities harming the environment.

Fig. 10 presents a revised general model of the mechanism of effects that inhabitants and civil organizations can have on local decision making.

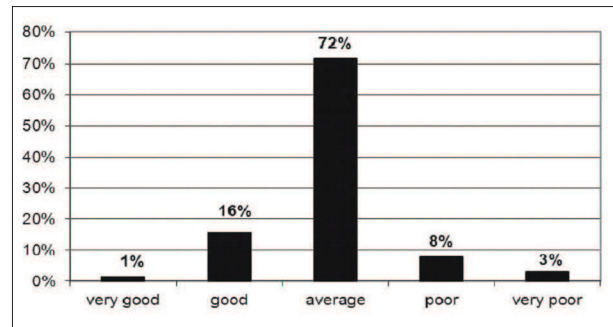


Fig. 9: Frequencies for the question "How do you regard the activity of the local government considering environment protection?"

Environmental political decisions of the local government determine the development of the town environment. Inhabitants are informed about these decisions via the local television or newspapers. In the case of larger investments, it is a legal obligation to present the environmental impact assessment of the investment to the public, and public opinion has to be heard in a public hearing. During this process, inhabitants can transmit their opinions directly to the local government and to the environmental authorities also taking part in the hearings. According to experience, such remarks frequently reflect subjective individual opinions, offence or apprehension – and their effect on the final decision is very low (Fig. 10).

A stronger influence is evidenced by citizen interventions supported by analyses and legal representation that are usually lead by civil organizations. Their preparedness and arguments can have stronger effects on local environmental political decisions.

In extreme cases, issues regarded as serious enough can reach local referenda also by the initiation of the civil sphere. Valid and successful referenda have a binding effect, i.e. if inhabitants reject the investment of potential serious environmental risk, it cannot be realized.

In Hungary such successful local referenda impeded primarily the establishment of waste depositories and incinerators. Among them was the depository for low level and intermediate level radioactive wastes of the Paks Nuclear Power Station, which was not allowed to be constructed at the first site (Ófalu) by a referendum.

In the case study considered here, no active citizen interventions (protests, demonstrations) were organised – not even at the time when the air quality of the town was among the worst in the country. It was fortunate for the town that privatization following the regime change brought the re-development of a factory that was responsible for most of the air pollution in the

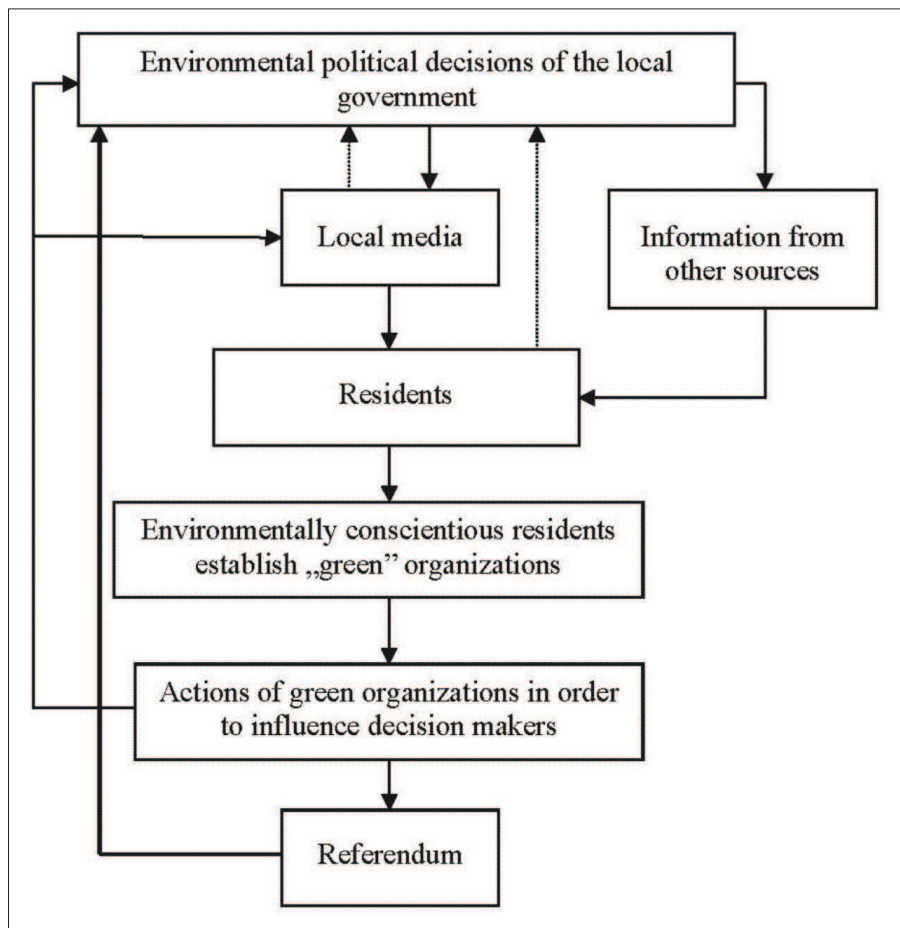


Fig. 10: Effects of residents and civil (green) organizations on local decision making (for explanation see text)
Dashed line: poor influence; Continuous thin line: moderate influence; Continuous thick line: binding influence

town. This development resulted in the installation of environment-friendly technologies and the factory is committed to improve air quality, in partnership with the local government, civil organizations and inhabitants. Inhabitants' opinions reflect their regard for the environment protection activity of the local government as reasonable, and that of the civil organizations as particularly beneficial.

Regarding the relations between parties in the town, we believe that co-operation can be further improved by developing partnerships. The most important task is to improve information transfers to the inhabitants, in the hope of making them interested in developing the environment of the town and involving them in the immediate residential environment.

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