

Environmental Management in Urban Areas: Croatian Challenges towards European Union Accession

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Due to ongoing urbanisation, accumulating waste, traffic, noise and damage to human health, environmental pollution occurs more frequently in Croatian cities. It is to be expected that it will occur even more often due to increased migration to towns, urbanisation, construction and industrialization around bigger town areas. This problem is stressed in bigger towns along the Adriatic coast. In summer months, due to big number of tourists, environmental impacts multiply, while the existing infrastructure (waste management centres, waste water treatment plans, water supply, noise and traffic infrastructure) minimally meets the increasing needs.

Apart from the inadequate infrastructure, the EU environmental directives have not been fully transposed to Croatian legislation. However in the last two years significant changes have been made especially with regard to waste and waste waters. The level of institutional capacity for environmental management in urban areas is inadequate, especially with regard to the knowledge and experience in strategic planning and environmental management, as well as in public participation in the environmental decision-making.

This paper shows the basic framework for environmental management in urban areas of the European Union and environmental directives which should be implemented in urban areas of Croatia, obligations related to environmental management in those areas deriving from the new Environmental Protection Act (2007) and the results of analysis of the existing knowledge and skills in the field of strategic planning and environmental management in Croatian urban areas. Finally, recommendations include basic guidelines for the development of environmental management programmes in urban areas according to EU recommendations and Croatian legislation.

Key words: Environmental management in urban areas, European Union environmental directives, Environmental protection policy in Croatia, Environmental management programmes

1. EU Framework for Environmental Management Plans

Environmental issues have become an important element of economic and business surrounding.

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To state just the most important, such as stopping climate changes and the loss of habitats and flora and fauna types, energy security and efficiency, improvement of the environment quality in which we live and work. These are the challenges which have lately gained the status of an imperative, having direct implications on economy, especially in urban areas where approximately 75% of European population lives.

Concerns about the Europe's urban environment facing cities have significant consequences for

human health, the quality of life of urban citizens and the economic performance of business subjects, but also the cities themselves. The 6th European Union Environmental Action Plan also stresses the importance of integrated approach to the environmental protection and environmental management within urban areas. The proposed actions lead to the development of Thematic Strategy on the Urban Environment which is still in the form of communication from the Commission to the Council and European Parliament. Environmental management at the local level, or for the local authorities means implementation of almost 300 environmental directives in the waste sector, water and waste water sector, air and noise sectors integrated with all other relevant development policy measures, e.g. social, industrial, agricultural, tourism, transport policy in order to achieve the high level of sustainable development.

The integration of the environmental and economic goals could be done through an integrated approach, consulting all existing strategic plans and inviting all relevant stakeholders which helps to avoid conflicts between the range of policies and initiatives to achieve a common long-term vision for local communities, cities or municipalities.

Beside the voluntary initiatives such as Local Agenda 21 and Aalborg Communities, some countries are legally obliged to prepare the Environmental Management Plans (Belgium, Denmark, France, Hungary and Slovenia) which requires integrated management of the urban environment. Additionally, in the European Union research community there are research projects relating to integrated urban management, rehabilitation of negative human impacts to the environment, cultural heritage and biodiversity, environmental risk energy efficiency safety and security issues under the 7th Framework Programme.

Environmental management plans on the city level (EMP) are "strategic documents which determine environmental protection policy and short-term, mid-term and long-term goals for an individual urban area. Environmental management plan determines a clear vision and environmental protection strategy, as well as the activities for its realisation based on which efficient daily planning and management at the level of a town are performed." (EC working group for the development of Environmental management plans at the level of towns, Final Report, version 3.2, February 16, 2005).

There are several advantages for the development of EMP with regard to environmental planning and management in urban areas:

- Efficient use of limited resources

Local authorities are confronted with significant challenges in the scope of environmental management because of its complexity. Decision makers are confronted with a whole range of challenges, while the resources for solving them are very lim-

ited. Interdisciplinary approach of EMPs enables identifying the key tasks and their prioritisation, giving priority to the implementation of measures of the widest scope and optimal results for environmental protection in urban areas.

- Coordination of legislation

EMPs help urban areas to understand the EU environmental protection and sustainable development policies. Integration of all environmental protection goals and existing programmes, projects or project ideas into one plan, considering the strong inter-sectoral connections related to environment, intensifies the significance of environmental protection policy in urban areas.

- Improvement of environmental condition

Practical experience of towns in the European Union shows how short-term improvements of air quality, level of noise, waste management, economical use of water and energy and the consumption of "green" goods and services are achieved through strengthened political and public targeting to environmental protection, which is also one of the results of EMPs.

- Improvement of managerial knowledge and skills

The improvement of managerial skills is evident in:

- The elaboration of environmental protection goals in other development plans and programmes at the level of towns

- Improved awareness of the local authority on the significance of environmental issues

- Improved communication among all interested parties and their active participation in environmental decision making

- Growing responsibilities of public officials and institutions in evaluation of environmental impacts and environmental management

- The growth of positive image and transparency of local authorities

- Improved possibility for integration and coordination of existing tools for the management of local development and increased efficiency of environmental protection.

EMP is the inevitable part of the system for environmental protection management, which can be certified according to internationally known systems, such as EMAS or ISO 14000.

Increased possibility to apply for funds and gain necessary means for investments into environmental protection

The precondition for urban areas when preparing project proposals for infrastructural project funds such as landfills, waste water treatment facilities, monitoring equipment, etc. will be better evaluated and have more chances to be financed if they are included in EMP. Credit or grant donor will feel safer to invest in environmental protection and sustainable development of a town.

2. Legal and Institutional Framework for the Development and Implementation of the Environmental Management Plans in Croatia

2.1. Research methodology

The analysis of the capacities of local communities to develop and implement the Environmental management plans was implemented during 2007. The existing legislation, institution capacity on national, regional (county) and local level and human resources were analysed – the existing knowledge and skills for the EMPs development and implementation on the local level. Two basic methods were used in gathering and analysing data: (i) analysis of available literature i.e. laws, decrees, relevant strategies and plans related to environment and certain environmental components (waste water, air, biodiversity, noise) and other relevant strategic planning documents for individual economic sectors; (ii) semi structured interviews were prepared and implemented on 200 people - the representatives of the local authorities dealing with environmental issues and other relevant stakeholders on the local level (e.g. NGOs, communal utility companies). The main results are summarised in three main categories: existing legislative framework, institutional capacity and human resources.

2.2. Relevant Croatian legislation

The Republic of Croatia followed the recommendations of Agenda 21. Following the Conference in Rio, the Declaration on environmental protection was adopted (RH 1992), which prescribed urgent establishment of legislative system on environment, in accordance with international standards. In 1994 the Law on Environmental Protection was adopted (OG 82/94, 128/99), which is the basic legal act determining the environmental component of sustainable development, i.e. determining goals, measures, principles, documents, implementation, responsibilities, financing and monitoring of environmental protection. In 2002 the Strategy for Environmental Protection and the National Action Plan were adopted, determining in detail the problems of individual environmental segments, i.e. certain aspects or procedures related to its protection. However, a number of sectoral strategies also contain certain aspects of environmental protection important for the development of EMPs.

In addition to the Law on Environmental Protection a number of environmentally relevant laws and legal acts regulate issues relevant for individual environmental segments, i.e. certain aspects or procedures related to its protection².

The Law on Environmental Protection (OG 110/07) prescribes the development of EMP at na-

tional level and Environmental protection programmes at county level, at the level of the City of Zagreb and other big towns³. The Law also prescribes the development of Environmental protection programmes for other towns and municipalities if it is foreseen in the Environmental management programme of a county in which the towns/municipalities are situated.

The horizontal framework for EMPs development already exists and assumes a number of plans and strategic documents for different environmental sectors on a town level (Local water management plans, County programme for soil protection, Programme for protection and improvement of air quality, Nature protection management plans, Local waste management plans, Noise maps and Noise action plans, Physical plans, General urban development plans and Sustainable development programmes for towns).

Since EMPs have not been implemented in Croatia at town level yet, the existing experience is based on the developed green agendas in several Croatian towns and on the finalised EMPs on the regional (county) level.

There are no official guidelines on how to prepare EMPs in Croatia, neither on county, not on town or municipality level. In the scope of the project Green Agenda in Croatia (December 2002 to May 2005, The Matra project, financed by The Netherlands Ministry of Foreign Affairs) the Manual for Green Agenda in Croatia was produced.

EMPs in Croatia on the county level are adopted for the period of four years. Using the indicators of programme realisation, after that period new EMPs for the next four years are developed. So far there is no experience or precise instructions in EPMS reviewing and updating.

By adaptation of the City Council, EMPs become official documents, but so far there are no mechanisms which ensure their enforcement once they are adopted.

As regards the development/implementation of environmental management systems – such as EMAS and ISO 14001 - general guidance exists and is used mainly at the level of public and private enterprises and rarely by public institutions.

2.3. Institutional capacity for EMPs in Croatia

At national level the activities related to environmental protection are divided among several ministries and state institutions. The Ministry of Environmental Protection, Physical Planning and Construction (MEPPPC) has the prime responsibility for the environment. The units responsible for environmental issues relevant for this project are the Directorate for Environmental Protection and the Directorate for Strategic and Integration Processes in Environmental Protection. The Ministry of Regional Development, Forestry and Water Management is responsible for water

management (except for drinking and bathing waters). The Ministry is operationally supported by the public company Croatian Waters, which is responsible for the implementation of all relevant environmental water protection and sustainable management project, water supply and water protection programmes.

Environmental protection is also the responsibility of regional and local government in the scope of regulation, organisation, financing and promotion of environmental activities. The county and town departments for environmental protection are responsible for the development of EMPs. Those departments are often also engaged in the issues of physical planning and communal infrastructure. Other departments are also included, such as the departments for economy, tourism, agriculture, transport infrastructure, construction, health etc. Moreover, other relevant institutions or companies on county, town and municipality level should be consulted, such as industry sector, schools, universities, etc.

Table 1 shows the division of responsibilities among different layers of government (national, regional and local) for specific obligations relating to EMPs.

The strengths and weaknesses of the current institutional capacities for the effective implementation of the EU environmental *acquis* with reference to EMPs at the city level in Croatia are summarised in Table 2.

2.4 Existing level of skills and knowledge for environmental management and planning

Local authorities, city and municipality management, are mostly aware of the significance that the EU

membership attributes to EMP development, but know very little and have minimal experience in dealing with such topics. Moreover, the majority interviewed town officers are unaware of the key principles and procedures of EMP development and its scope.

The knowledge of Croatian legislature in the field of environment is positive, but the knowledge of EU Directives in the field of environment and voluntary initiatives in general is very low. There is no necessary knowledge and experience in the field of management, reporting and decision-making processes.

The local authorities are not aware of the monitoring of EMP implementation, except as a notion; they have no experience in identifying indicators, methods of evaluation and analytical monitoring. Moreover, they have almost no experience in evaluation of EMP implementation and in reviewing the set goals and policies with regard to new circumstances in the surrounding area.

In the last decade numerous projects at national level have been done, especially for the needs of the Ministry of Environmental Protection, Physical Planning and Construction, through which the EU and international community have strengthened the institutional capacity for the implementation of environmental *acquis*. However, with the exemption of several smaller projects, it is not yet the case at local and regional level.

3 Recommendations

3.1. Methodology

Taking into consideration the recommendation of the European Commission on intensifying the in-

Table 1 - The division of responsibilities

Responsibilities	Central	Regional	Local	Other
Defining size of agglomerations/urban areas	Yes	yes	-	-
Preparing EMP	Environmental strategy and action plan	yes	yes	but not obligatory
Issuing guidance on EMPs	Yes	possible	possible	
Preparing River Basin Management Plans	-	-	-	public company Croatian Waters
Preparing waste management plans	Yes	yes	yes	
Preparing ambient air quality plans	Strategy	yes	yes	
Preparing strategic noise maps and action plans	-	yes	yes	
Preparing transport plans	Strategy	yes	yes	
Ensuring integration of other plans in the EMP	-	yes	yes	
Ensuring public consultations on EMPs	Yes	yes	yes	
Making information on EMPs available to the public	Yes	yes	yes	

Table 2 - Institutional capacity assessment for development and implementation of the environmental management plans on local level

Strengths	Weaknesses
National legislation on EMPs	No EMPs on town level
Clear lines for co-ordination with all relevant authorities	No guidance documents on EMP
Experience in Green Agenda	No procedural documents
Guidance documents in Green Agenda	Lack of staff
Existing environmental strategic documents and plans for waste, water, air, niche on central regional (county) and local level	Equipment (noise, waste recycling /recovery, energy consumption)
Practice of stakeholder participation	No mechanisms for green purchasing
Cooperation with local companies / stakeholders	No mechanisms for public awareness programmes
IT (hardware and communication)	
Equipment (air, water, cleaning)	
Official documents and information are online	

tegrative approach to environmental management planning on the local level, the recommendations are based on strengthening capacity and knowledge and skills for the development of EMPs of the local authorities in Croatia.

Two basic methods were used to develop recommendations: (i) 6 focus groups were established consisting of 20 people interviewed to develop concrete recommendations for certain expert fields (legislation, development of a manual, strengthening knowledge and skills for the development of EMPs, monitoring and defining indicators, share of the experiences, etc; (ii) on job learning through 4 working groups for the development of EMPs in pilot towns – Split, Zadar, Čakovec and Virovitica, which have unified their practical knowledge and recommendations that have emerged in the scope of the development of EMPs.

3.2 Need for a legal requirement to develop EMPs

The new Environmental Protection Act (OG no. 110/07) prescribes the development of Environmental Management Plans (EMP) at national level and Environmental Management Plans at the level of counties, at the level of the City of Zagreb and other bigger towns. This law prescribes the development of EMPs for other towns and municipalities if it is foreseen in the Environmental Management Plan of a county in which the town or municipality is situated. Legal requirements specifying the content of EMP have not been developed yet.

Since EMPs are a novelty in Croatia, there are no official guidelines on how to develop EMPs in Croatia. The existing experience is based on the developed Green Agendas in several Croatian towns and the existing EMPs at regional (county) level.

Table 3 Assessment of skills and knowledge of the local authorities for the development and implementation of the Environmental management plans

Strengths	Weaknesses
University degree of all people interviewed	Insufficient knowledge in the field of EMP
Strong expert knowledge	Insufficient knowledge in the field of EU directives
Good knowledge of relevant Croatian laws, strategies and policies	Insufficient knowledge in the filed of management and strategic planning
Strong willingness to work and learn	Insufficient knowledge (no trainings) on public awareness
	Insufficient knowledge (no trainings) in the fields of monitoring and evaluation

Therefore, the recommendation is to develop decrees with detailed instructions - guidelines for the development of EMPs, instructions for monitoring and evaluation of EMPs, as well as mechanisms ensuring their implementation, once they are developed.

3.3 Vertical division of public administration responsibilities in the field of environmental protection

At national level the activities related to environmental protection are divided among several state institutions. The prime responsibility of the Ministry of Environmental Protection, Physical Planning and Construction of the Republic of Croatia (MEPPPC) is the environment.

Environmental protection is also the responsibility of regional and local governments within the scope of existing regulations, organisation, financing and promotion of environmental activities. The county and town departments for environmental protection are responsible for the development of EMPs. Those departments are also often engaged in the issues of physical planning and communal infrastructure.

The problem is that so far the preparation of development programmes and plans has not been done according to a general integral approach so the recommendation for the development of EMP is to include other departments, such as the departments for economy, tourism, agriculture, transport infrastructure, construction, health, etc. Moreover, other relevant institutions or companies on county, town and municipality levels should be consulted, such as industry sector, schools, universities, etc.

3.4 Division of responsibilities between different planning levels

Apart from the Environmental Protection Act there are numerous environmentally relevant laws and legal acts, which determine in details the problems of individual environmental segments, i.e. certain aspects or procedures related to its protection⁴.

Horizontal framework for the development of urban EMPs exists and coordinates a large number of plans and strategic documents dealing in more detail with certain segments of environmental protection in a town area (for example, Local water protection plans, County soil protection programmes, Monitoring programmes for quality and protection of air, Protected areas management plans, Local waste management plans, Noise maps and Action plans for the protection from noise and Plans for sustainable development of urban areas). However, there is still no practice in the interdisciplinary approach and cooperation between different levels in planning the development of EMPs and similar documents.

Each expert study deals with its own sector. The same applies to planning documents, and there is often no correlation between individual documents.

In addition, some experts do not consider the existing analysis/documents and recommendations in their studies. Such an approach of using existing contemporary sectoral studies and plans should be supported and intensified in the future.

3.5 Interaction between different planning levels

Physical plans and the General urban physical plan are the basic documents determining the management of the area, therefore they are the legal framework in the scope of which recommendations and EMPs should be developed. Other plans, like Agenda 21, Green Agenda, EMAS, etc. are not prescribed by the law as obligatory documents, but if they exist their recommendations should be used in the development of EMPs.

3.6 Public participation

Although there is a good practice and legal obligation to develop environmental impact assessments for all bigger development and infrastructural objects, public participation in environmental decision-making from the phase of planning to the development of strategies and plans related to environmental protection is being adjusted to the EU legislative regulations. This approach is supported by the NGOs in urban areas, and in the course of this project the experience and possibilities of public participation in the development of EMPs were presented. Some of the proposed activities are presentation of the development of EMP at the town websites, communication with the media, inclusion of NGO's as representatives of the public into working groups for the development of EMP. Such an approach should be applied in all towns where EMPs are being developed, with the training on specific knowledge and skills of public participation in the development of EMPs in the future, as well as on the benefits of public participation not only for the public, but also for the town administration. Furthermore, a manual on public participation in the development of EMPs would be a useful document, not only at the level of towns, but also at the level of counties.

3.7 Access to information by the public

Public institutions at the level of towns and town administration manage environmental information according to legal provisions. They collect, process and forward the data within the scope of their competency. At the request for environmental information by the public they try to give precise answers, however, they are often limited by time and the staff (increased work and insufficient staff). The request is most often forwarded to a relevant institution. In spite of the fact that environmental databases exist, they are not fully established even at national level and therefore the data are often not available. Since Croatia

is a signatory to the Aarhus Convention, the staffs of urban administrations are aware of the obligation that information should be accessible to the wider public. It is expected that the number of staff working on informing the public will increase, and that they will be additionally trained to learn the procedures of how to handle a request for environmental information.

3.8 Organisation set-up and planning process for the EMP

The common practice was very weak communication and cooperation between different local self-administration bodies related to environmental management. The objective for the future towns' management is to apply participatory and proactive approach of an interdisciplinary team in the development of EMPs, which would include all relevant stakeholders – developers. Decrees should stress the need of an interdisciplinary approach in the development of EMPs and enable the training of local self-administration bodies for the implementation of integral planning in the development of EMPs.

3.9 Scope of the EMP and prioritisation

The Environmental Protection Act prescribes the general content of EMP and there is experience in the development of similar documents at county level. Therefore, the content of EMP proposed at the beginning of the project is coordinated with the Act, and the recommendation for decision-makers is to use four pilot urban EMPs as the basis for the development of decrees.

EMP consists of the basic analysis of key environmental components and key development segments of each urban area, identification of basic problems and challenges of the key environmental components and the definition of key environmental goals. With regard to their significance for the local community and limited financial resources for a strategy, the trainees have identified them through the prioritisation process.

Moreover, according to the Environmental Protection Act, EMP consists of elaborated measures and activities for the realisation of individual goals.

The key obstacle in the development of future EMPs is the disbalance of the growing needs and limited resources, the same problem which occurred in the pilot urban areas. Basic needs and the order in which they are going to be solved are identified through the prioritisation process and implemented through action plans, beginning with the ones that are most critical/most needed.

3.10 Development of an environmental policy

The local authorities have to learn how to identify, through the basic analysis, the key problems, implement SWOT analysis and from it derive the goals of sustainable development and environmen-

tal protection. Although similar documents are developed at county level, members of local regional self-government often demand such studies, but seldom participate in the process of integral development of plans and programmes. The problem is in insufficient knowledge of management tools. The recommendation for future trainings, related to strengthening management tools, is the development of strategic documents and development plans.

3.11 Development of objectives, targets and indicators

The local authorities have to learn how to derive the goals of sustainable development and environmental protection from SWOT analysis, define priorities, measures, activities and indicators. The problem is in insufficient knowledge of planning techniques, mainly mastered through this training, and the recommendation for future trainings, related to strengthening management tools, is to develop strategic documents and development plans.

3.12 Development of an action plan for selected areas

Participation in the activities in the environmental sector will be one of the key challenges for future Environmental Management Plans. The problem of future planning will be related to identifying financial sources for proposed activities and necessary funds within the scope of the limited budget for environmental protection projects/programmes in urban areas. Due to the adjustment of Croatian legal system with the relevant EU environmental legislation, a number of planning documents have been introduced which are or have become legal requirement, but their implementation in practice often is not fully ensured. One of the reasons is the lack of a mechanism for revision, insufficient funds for their implementation, etc. Therefore, the recommendation is to develop realistic EMPs which can be applied in practice.

3.13 Monitoring and reviewing of the EMP

The Environmental Protection Act prescribes definition of indicators for monitoring of EMP and action plans implementation and reviewing in a determined time period (most often every four years). It is proposed to clearly define EMP monitoring and reviewing methods in a decree or in a manual, determining responsible institutions or experts. For example, interdisciplinary groups developing EMPs at the level of towns continuously monitor EMP implementation and review activities in determined time periods.

3.14 Human resources responsible for environmental management issues

The dynamics of adjustment of Croatian legal regulations with the EU directives is very intense,

which requires enormous engagement of the existing staff. In towns there is usually one person responsible for environmental protection activities who has several temporary collaborators, and he/she monitors the condition of individual environmental sectors.

Based on the performed analysis, the key problem in the preparation of EMPs is insufficient capacity, i.e. insufficient staff at local level which would fulfil all the obligations deriving from the transposition of EU directives into Croatian legislature.

The partial solution is that external institutions or experts are usually engaged in performing concrete actions related to the monitoring of the environmental condition and the development of legislative documents, but it is necessary to ensure sufficient knowledge of the staff in strategic planning and management and in monitoring and evaluation of the implementation of EMPs.

3.15 Education needed

The experts engaged in environmental protection are highly educated and have the expert knowledge in their fields of study. The problem is insufficient knowl-

edge in strategic planning and the lack of integral approach in environmental management planning.

The recommendation is to organise specific trainings for the development of plans and programmes and for integral management. Moreover, the problem is the insufficient number of staff for the implementation of EU environmental legislation in Croatia.

One of the basic recommendations for future activities in the field of environmental management is future intensive trainings at local level, related to integral approach to the development of planning documents and strategies, public participation and monitoring and reviewing of EMP implementation.

3.16 IT equipment and databases

It is presumed that other bigger towns have satisfactory IT equipment. Databases are most often prepared at central level (Environmental Protection Institute) and experts from urban areas regularly deliver data to the Institute. The system is continuously strengthening at national level. Experts have a possibility to access databases in the scope of their work. ■

NOTES

1 The paper is the result of the research undertaken in the scope of the project "Strengthening the Capacity of Local and Regional Environmental Authorities to Implement the Environmental Acquis" European Commission, DG Environment, performed in Croatia by the experts of the firm COWI Denmark, IMO, IGH Zagreb, Croatia, 2008.

2 For example: Air Protection Act (OG 178/04); Waste Act (OG 178/04); Water Act (OG 107/95), Noise Act (OG 020/2003), By-Law on Environmental Information System (OG 74/99, 79/99); The Rule Book on Environmental Impact Assessment (OG 59/

00, 136/04); and some hundred more laws related to environmental protection in the Republic of Croatia.

3 The size of town is not precisely defined by the Law.

4 For example: Air Protection Act (OG 178/04); Waste Act (OG 178/04); Water Act (OG 107/95), Noise Act (OG 020/2003), By-Law on Environmental Information System (OG 74/99, 79/99); The Rule Book on Environmental Impact Assessment (OG 59/00, 136/04); and some hundred more laws related to environmental protection in the Republic of Croatia.

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