

## ARTICLES

**THE EVALUATION OF ACHIEVING SUSTAINABLE DEVELOPMENT IN THE TOWN OF MARIBOR***AUTHORS***Ana Vovk Korže**

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*ABSTRACT****The evaluation of achieving sustainable development in the town of Maribor***

*In 2001, the Municipality of Maribor already prepared a Report on the state of environment with the goal to actively approach the realisation of the Local agenda 21 for Maribor. Conditions of that time didn't allow a realisation of all planned objectives and measures, therefore the Municipality of Maribor decided to once more prepare the Municipal Environmental Protection Programme, based on the Reports on the state of environment in the Municipality of Maribor. For the period 2008 – 2015 the EPP included areas of integrated waste management, the system of safe healthy drinking water supply, air protection, protection against noise and climate change, sustainable traffic development, preserving of natural values and green areas and comprehensive environmental informing and awareness-raising. Desiring to improve the implementation of set objectives and to plan objectives and measures more realistically, in the preparation of the new EPP for the period after 2015, the emphasis in the paper is on the research of the connection of measures to achieve the objectives. This paper shows the evaluation methodology and the objective and measure achievements of the Municipality of Maribor that are recorded in the Municipal environmental protection programme for the period 2008 to 2013.*

*KEY WORDS*

*Maribor, environment, development, areas, implementation, programme*

## 1. Introduction

The Municipal Environment Protection Programme for Maribor (EPP for MB) was set up based on the recommendations of the Ministry of the Environment and Spatial Planning (Recommendations of the minister for the preparation municipal environment protection programmes, 2006). The Town Council of the Municipality of Maribor accepted in 2008 the Municipal Environment Protection Programme for Maribor (EPP for MB for the period 2008 to 2015). The EPP for MB is a written vision of Maribor as a citizen-friendly and sustainably-oriented city. As a starting point for the vision achievement, following strategic objectives were defined for the EPP for MB (The Municipal Environment Protection Programme for Maribor, 2008):

- a system of integrated waste management,
- a system of safe healthy drinking water supply,
- air protection, protection against noise and climate change,
- sustainable traffic development,
- preserving of natural values and green areas and
- integrated environmental informing and awareness-raising.

The Municipality of Maribor has been following the implementation of the EPP for MB, where no specific measures to achieve the set objectives were detected. On account of the growing importance of the theme of sustainable development for urban areas, we conducted an analysis of the sustainability achievement for Maribor and qualified the level of achievements of set strategic and operational objectives. The purpose of this paper is to determine the status of sustainable development achievements in the case of the town of Maribor, and based on the findings, provide guidance for the future. We are assuming that the achievement of objectives of the EPP for MB is poor and that, despite the findings in 2013 that the objectives were not being achieved, even later, until 2015, nothing changed.

The objective of the research is to assist cities and local communities in evaluating the programme implementation, as such assessments allow activation of measures with which sustainable development in urban areas is indeed being achieved. We also assume, that the EPP for MB is insufficiently known to the public and that the public is insufficiently included into the implementation of EPP objectives, while these are an important indicator of sustainable orientation of the town of Maribor. With the aim to motivate the general public to actively participate in the implementation of sustainable development objectives of Maribor, in this paper we point out areas that could be pursued in educational institutions (Train to LA 21, 2008), in associations, institutions and broader circles, not only in the Municipality of Maribor.

The analyses of Regional Development Programmes and the EPPs of Slovenian towns show (Vovk Korže, 2010) that intermediate evaluations are useful for the actual achievement of objectives at the end of the expiry of those documents.

## **2. Evaluation methodology of the epp for Maribor**

To monitor the achievement of objectives and measures in the EPP for MB, available sources were reviewed and reports from the MOM (MOM, Mestna Občina Maribor - The City Municipality of Maribor) services and public companies on the implementation of contents in specified time periods were obtained. The descriptions of realisation in individual areas were the basis for carrying out the evaluation, where the direction of the realisation of individual objectives and measures were first assessed. With this approach, the processes of achieving the EPP for MB in the first two years of the EPP implementation have been monitored.

An estimate of achieving individual objectives and measures, that is, of achieved specific measures, has been added. By connecting the two approaches of evaluation, that is, estimates with respect to the direction of realization (A) and estimates the achievement of objectives and measures (B) give a combined estimate (an overall assessment of) achieving the realization of EPP for MB in the first two years. In the content and timing estimates the data from the MOM project descriptions were taken into account.

The achievement evaluation of the set objectives and measures of the EPP for MB for the period 2008 – 2013 thus included:

- a) evaluation of achievement of objectives by content: (it has been checked here whether in 2008 all necessary strategic, system and operational objectives were predicted and whether they need to be complemented, linked, or upgraded). With this we obtain an insight into real current events, that can be different than planned;
- b) time monitoring of objectives: certain objectives are interconnected, which requires a complete time monitoring of the condition, because a partial estimate of individual activities might be contrary to the real situation. The fact is that in the means of time the complete process and the cumulative effects, that are often higher than the achievement of an individual objective in a specific time unit, need to be evaluated;
- c) an overall assessment of the content and time evaluation of the EPP for MB for the period 2008 – 2015, that is based on the evaluation a) and b) and thus enables the comprehension of the state at the achievement of the objectives and measures of the EPP for MB;

- d) preparation and application of assessment indicators for monitoring the implementation of the EPP for MB –it was required to define relevant and comparative indicators for an individual field and to assess them regarding the condition of the EPP realisation i.e. regarding environmental situation. The indicators have been defined by content fields of the EPP for MB.

*Following key for assessment of objectives and measures of the EPP for MB:*

Assessment with regard to the realisation direction of individual objectives and measures in the EPP	
+	positive direction of realisation
-	negative direction of realisation
0	assessment cannot be set

Note: + positive direction of the realisation represents efficiently directed measure in respect of achieving environmental objectives, - negative direction represents that the environmental objectives haven't been achieved and 0 that the assessment can't be set.

**Overall assessment:**the prevailing direction of realisation is taken into account (number of + or - characters)

(B) Assessment of achievement of individual objectives and measures of the EPP	
+	YES
-	NO
0	Assessment cannot be set

Note: rating + means, that the objective, that is, the measure is accomplished, - that it isn't accomplished and 0 that the assessment cannot be set. Overall assessment: the prevailing direction of realisation is taken into account (number of + or – characters)

Next to the assessment of direction, the achievement of objectives and measures in a specific time period has been evaluated. If specific measures are still being undertaken or the results will be visible later, this is evaluated with a +.

OVERALL ASSESSMENT OF REALISATION DIRECTION AND THE ACHIEVEMENT OF OBJECTIVES AND MEASURES IN THE EPP FOR MB FOR THE PERIOD 2008 - 2010	
+	if the sum (+) in both criteria is predominant
-	if the sum (-) in both criteria is predominant
0	if the assessment couldn't be set for various reasons

Indicators to monitor sustainable development in Maribor were adapted to environmental objectives signed by the State of Slovenia and implemented at the local level on one hand, and the specificities of the MOM, which emerged in the evaluation of the EPP on the other. For individual areas of the EPP from one to four indicators have been developed and qualitatively evaluated.

With the indicators, a **combined assessment** of the realisation direction of the EPP and the achievement of measures was taken into account. A share of implemented objectives and measures has been taken into account and the following key was used to display the degree of achievement of the indicators:

### Key to the indicator achievement

Levels	
	<b>1</b> <b>2</b> <b>3</b>
	<b>low</b> <b>medium</b> <b>high</b>

**Low:** if the objective and measure achievement is below 50 %

**Medium:** if the objective and measure achievement is between 50 and 75 %

**High:** if the objective and measure achievement is above 75 %

In the final part of the EPP for MB evaluation, suggestions for efficient realisation of objectives and measures with emphasis on sustainable development were given.

## 2. Results of objectives and measures achievement of the epp for mb

The content analysis of the strategic objectives and measures has shown that individual strategic objectives have more system and operational measures, that is, 127 different measures that are being conducted in the MOM within the EPP for MB 2008 – 2010. By number and volume of objectives and measures it can be said that the sum of dispersed activities is too high and they therefore cannot lead to effective results. Equally, the fields are insufficiently interrelated with measures, and in many cases these are quite opposite (between reality and the objectives set).

*Table 1. Strategic objectives and number of measures*

Strategic objectives	System objectives 2008 – 2010	Operational objectives 2008 - 2010	Operational objectives and measures 2008 – 2010
1 The system of integrated waste management	3	2	8
2 The system of safe healthy and drinking water supply	6	4	21
3 Air protection, protection against noise and climate change	6	2	10
4 Sustainable traffic development	9	4	27
5 Preserving of natural values and green areas	7	1	11
6 Comprehensive environmental informing and awareness-raising	2	0	0
Total number of objectives	33	27	77

*Source: Municipal Environmental Protection Programme for Maribor (EPP for MB) for the period 2008 – 2009.*

What follows is substantive and temporal overview of the realisation of strategic objectives, systematic measures, operational measures and operational objectives and measures for the period 2008 - 2015.

### **3. An overall assessment of achievement of objectives and measures in the epp for Maribor**

Once the methodology was recorded, individual areas of the EPP were evaluated according to the achievement of objectives from the EPP. Indicators for individual areas (integrated waste management, safe drinking water supply, air protection, protection against noise and climate change, sustainable traffic development, preserving of natural values and green areas and environmental informing and awareness-raising) were used for the evaluation. Colours were used to label the achievement of the EPP for MB objectives, where red labels low achievement, yellow medium and green high achievement. Information on the achievement of the objectives of the EPP was developed for specific areas in the evaluation of the achievement of the effects of individual measures.

### 3.1 Achieving objectives and measures in the field of waste

Systemic measures in the field of integrated waste management have achieved 75%. Setbacks occurred in the management programme of separately collected fractions due to changes in legislation. Unfortunately, systemic measures were not followed by operational objectives, therefore the realisation was incomplete. Therefore, it is necessary to consider amending the set objectives and align them with the financial and political conditions.

#### Indicators in the field of integrated waste management:

Three indicators have been defined:

K1 - upgraded infrastructure for integrated waste management

K2 - redeveloped landfill areas and gravel pits (old burdens)

K3 - system solution of integrated waste management

Analysis of indicators on the basis of an assessment of the objectives and measures again shows that MOM requires a comprehensive approach to manage waste, including rehabilitation of old burdens. This indicates a low level of achievement of the indicator K2 and K3.

K1	
K2	
K3	

#### Key to the indicator achievement



**low                      medium                      high**

**Low:** if the objective and measure achievement is below 50 %

**Medium:** if the objective and measure achievement is between 50 and 75 %

**High:** if the objective and measure achievement is above 75 %

Proposal: Due to the low level of achievement of the set indicators in the field of waste management new approaches used abroad are suggested, where waste is treated as materials and where a part of the energy is obtained from waste. It is necessary to seriously consider waste as a business opportunity, green jobs and responsible management of natural resources. Existing approaches of attempting to solve the waste problem are choking with administrative delusions of the country, so the Ministry of Agriculture and the Environment should take into consideration that the scope of waste is to be lead by capable

people, as municipalities cannot solve accumulated problems that are also a heritage of the responsible attitude of the country to this problem.

### 3.2 Achieving objectives in the field of drinking water supply

The realisation of the environmental goals in the field of water indicates that 31% has been completely, 54% partly, and 15% not realised at all. A third of the realization of environmental objectives in the field of water is not satisfactory, since it is a strategically extremely important area. It is therefore necessary to consider the full realization of environmental targets that globally impact the possibility of realization of other objectives. Systemic measures in the field of ensuring security of healthy drinking water supply have been realised 100%, which is very praiseworthy and provides a basis for conducting operational objectives. Achieving operational objectives in the field of infrastructure building for safe supply of healthy drinking water is not fully realised. The objectives in the field of upgrading the infrastructure for the provision of safe drinking water were achieved, while the operational objectives in the field of reducing chemical pollutants and providing good chemical and quantitative status were not met.

#### Indicators in the field of the system of safe supply of healthy drinking water:

**Based on an analysis of systemic and operational measures four indicators have been defined:**

- K1 - achieved improvement of groundwater
- K2 - upgraded infrastructure for the safe supply of healthy drinking water
- K3 - reduced pressures on water resources
- K4 - preventive protection of water resources

K1	
K2	
K3	
K4	

#### Key to the indicator achievement



- Low:** if the objective and measure achievement is below 50 %
- Medium:** if the objective and measure achievement is between 50 and 75 %
- High:** if the objective and measure achievement is above 75 %



Proposal: given the high achievement of system objectives in the field of water, it makes sense for a more radical shift the field of realisation to be made. Modern, sustainable methods of protecting water resources are missing, that would at the same time be an opportunity for new movements in the field of agriculture. Therefore, it is absolutely essential to consider the correlation of sectors, in particular the water and agriculture, as there are many missed opportunities in this area in Slovenia.

### 3.3 Achieving objectives in the field of air protection, protection against noise and climate change

A positive sense of realisation of system and operational objectives reduces the information on the achievement of indicators which reaffirms a fairly bureaucratic to the realisation of the required objectives regarding the protection of air and noise pollution.

#### Indicators in the field of air protection, protection against noise and climate change:

- K1 – prepared system measures
- K2 – upgraded emission monitoring of weather change
- K3 - reduced noise pollution

K1	
K2	
K3	

- Low:** if the objective and measure achievement is below 50 %
- Medium:** if the objective and measure achievement is between 50 and 75 %
- High:** if the objective and measure achievement is above 75 %

#### Key to the indicator achievement



### 3.4 Achieving objectives in the field of sustainable traffic development

In the transport sector, some operational objectives never became a reality. This is the case of increasing the share of public transport, cycling and walking and reducing the number of vehicles in the city. Therefore, the realisations of operational targets are very low and together, all areas reached only 26%.

The results of system measures aren't any better, the total realisation was 33%, showing a large deficit in the introduction of mechanisms for sustainable reversal of traffic. Similarly, in the achievement of indicators, not a one of the key milestones for sustainable mobility in the city was achieved.

**A collective state analysis in the field of traffic results in a very low achievement rate of the three indicators:**

- K1 – the use of public transport
- K2 – sustainable oriented traffic
- K3 – roof traffic strategy

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	

- Low:** if the objective and measure achievement is below 50 %
- Medium:** if the objective and measure achievement is between 50 and 75 %
- High:** if the objective and measure achievement is above 75 %

In the field of sustainable traffic there is almost no realisation of objectives and measures of the EPP in the first two years, which is very worrying and therefore requires immediate action.

**3.5 Achieving objectives in the field of preserving of natural values and green areas**

The system objectives are aimed at ensuring the role of green spaces in the city, but they were not realized, whereas the operational objectives indicate the realization of 27%, which is also too low in relation to the requirements of the ecosystem development approaches. It is difficult to assess the indicators of achievement in the field of preserving of valuable natural and green areas, since the data for these in the accounting documents aren't available. Starting from monitoring reports (media), it is estimated that, due to excessive interventions in space biodiversity is being reduced and that there is no increase in the valuable ecosystem areas, which would in fact be the real capital for green development breakthrough of Maribor.

Achievement indicators in the field of preserving of natural values and green areas

- K1 – preserved biodiversity and ecosystems
- K2 – increased ecosystem value of areas

<b>K1</b>	
<b>K2</b>	

### Key to the indicator achievement



- Low:** if the objective and measure achievement is below 50 %
- Medium:** if the objective and measure achievement is between 50 and 75 %
- High:** if the objective and measure achievement is above 75 %

Proposal: for the field of nature and natural resources there is very little data. Therefore, it is proposed to give this field more weight and to make nature and natural resources an indispensable part of green development, which may be the only real development. Low achieving environmental objectives and strategic and operational objectives also show a bad attitude to this area and also a lack of information compared to other areas of the EPP for MOM.

### 3.6 Achieving objectives in the field of comprehensive environmental informing and awareness-raising

Even though the EMAS wasn't realised, the notifying and informing in the MOM is excellent. This is also indicated by the level of indicators of a conscious and informed public, being already realised in 2010 in the EPP. Indicators for comprehensive environmental informing and awareness-raising Content and time evaluation of all measures show that the state of the awareness and informing in the MOM is high:

K1 – conscious and informed public

K1	

### Key to the indicator achievement



- Low:** if the objective and measure achievement is below 50 %
- Medium:** if the objective and measure achievement is between 50 and 75 %
- High:** if the objective and measure achievement is above 75 %

#### 4. Overall assessment of the achievement of objectives and measures in the EPP for MB

In the final part of the evaluation of the EPP for MB an overall assessment of the indicator achievement is provided, which were derived from the set objectives and measures in the MOM with the desire to get an insight into the achievement of environmentally relevant development goals. Environmental objectives that should be achieved for environmental development of the MOM were included. With the levels low, medium and high, the situation in 2010 and 2013 (basis are reviewed financial reports by 2013 from the sites of the MOM) has been evaluated. In the field of water, a decrease in the status of the indicator from high to medium achievement has been noticed, whereas other indicators haven't changed in 5 years.

#### Key to the indicator achievement



- Low:** if the objective and measure achievement is below 50 %
- Medium:** if the objective and measure achievement is between 50 and 75 %
- High:** if the objective and measure achievement is above 75 %

- Indicators for the field of integrated waste management:**
- K1 - upgraded infrastructure for integrated waste management
  - K2 - redeveloped landfill areas and gravel pits (old burdens)
  - K3 - system solution of integrated waste management

Situation 2010

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	

Situation 2013

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	

- Indicators for the field of safe healthy drinking water supply**
- K1 - achieved improvement of groundwater
  - K2 - upgraded infrastructure for the safe supply of healthy drinking water
  - K3 - reduced pressures on water resources

**K4 - preventive protection of water resources**

**Situation 2010**

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	
<b>K4</b>	

**Situation 2013**

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	
<b>K4</b>	

**Indicators for the field of air protection, protection against noise and climate change:**

- K1 – prepared system measures
- K2 – upgraded emission monitoring of weather change
- K3 - reduced noise pollution

**Situation 2010**

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	

**Situation 2013**

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	

**Indicators in the field of sustainably oriented traffic:**

- K1 – increased use of public transport
- K2 – lowered conditions for sustainable forms of mobility
- K3 – no roof traffic strategy

**Situation 2010**

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	

**Situation 2013**

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	

**Situation 2015**

<b>K1</b>	
<b>K2</b>	
<b>K3</b>	

**Indicators of achievement of objectives in the field of preserving natural values and green areas**

K1 – preserved biodiversity and ecosystems in the MOM

K2 – increased ecosystem value of areas in the MOM

Situation 2010

<b>K1</b>	
<b>K2</b>	

Situation 2013

<b>K1</b>	
<b>K2</b>	

**Indicators for comprehensive environmental informing and awareness-raising**

K1 – conscious and informed public

Situation 2010

<b>K1</b>	
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Situation 2013

<b>K1</b>	
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**Overall assessment of achievement of objectives and measures for the EPP 2010**

<b>K</b>	4
<b>K</b>	3
<b>K</b>	9

**Overall assessment of achievement of objectives and measures for the EPP 2013**

<b>K</b>	3
<b>K</b>	4
<b>K</b>	9

### 5. Recommendations of the mom for achieving the epp goals

Measures and objectives in the EPP for the Municipality of Maribor should be implemented integrated, meaning that economic (E), social (S) and environmental (E) objectives should be already connected in the implementation phase as to ensure a link, which would then yield greater results (Radej, 2009).

Implementation of individual measures and objectives is incoherent. What is more, it is not a part of a broader strategy and as a result the majority of objectives were not achieved. If a financial realization would be added, a setback in this area would be determined as well. To the MOM we propose an immediate operational approach and a connection of set objectives and measures. Such findings arise from up to date analyses of development programs which have the greatest mistake of a in discontinuity of objectives (Radej, 2008). International evidence suggests the importance of focusing on the vision and unity of action for achieving this only (Ekinson P., J. Medhrust 2003).

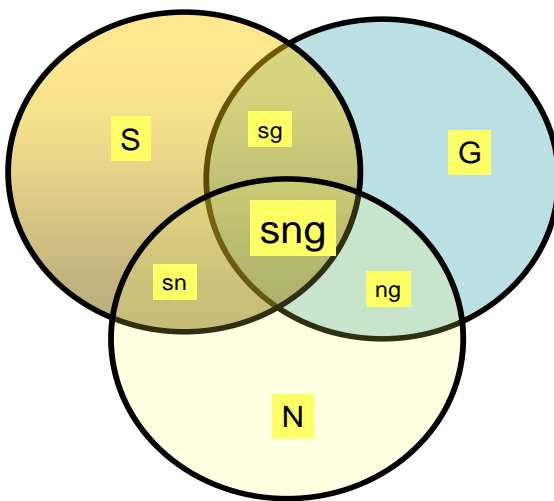


Figure 1. Main cause of the failure to achieve objectives of the FPP for MB is a great number of unconnected objectives. Therefore, a cross-sectional connection must be made.

We propose the new EPP for MB for the period after 2015 to be simplified in the number of measure relations and in number of the measures themselves. With related measures it would be significantly easier to motivate people to participate and the results would be more visible, the effects would be larger and in daily life of citizens of Maribor positive improvements would be visible. Moreover, we note that many of the environmental problems affect exceed municipal boundaries and therefore it would be rational to draw up measures to be implemented simultaneously in several municipalities. In this matter, flooding, water pollution, dust particles, traffic and the like are not limited to municipal boundaries. These would also contribute to reducing the costs of resolving specific problems.

## 6. Conclusion

The evaluation of the EPP for MB for 2008 – 2015 reveals that sustainable advances in the municipality of Maribor are too slow. The most positive results occur in the field of environmental information, where a lot of activity and people's interest in such developments is recorded. From monitoring the reactions of people, we find that people who live in Maribor wish for sustainable natural measures and that they object the demolition of the natural environment in favour of urbanization and traffic.

Despite the fact that the launching of the EPP for Maribor was running late and that incomplete data available for evaluation were included, it gives us recognition that we cannot be satisfied with its realisation. And the neighbouring region of Vulkanland in Austria is convincing us about possibilities of a comprehensive sustainable development (Krotscheck, C. 2007), therefore we believe that the results of sustainable development are achievable.

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