

ENVIRONMENT – ATTITUDE OF CITIZENS AND MUNICIPALITIES OF PARDUBICE REGION

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Abstract: *This paper deals with an attitude of citizens and municipalities of the Pardubice region to the environment. It is focused on the regional development strategy of the Czech Republic, the Pardubice region, data collection and their evaluation. Data collection was realized during autumn of the year 2008 by two questionnaires (questionnaire for citizens and questionnaire for municipalities). The goal of this paper is to describe and evaluate opinions of citizens and attitude of municipalities to this priority area of the above mentioned strategy.*

Keywords: *Environment, the Pardubice Region, Municipality, Citizen, Data Collection.*

1. Introduction

Environment is everything that creates natural conditions of existence of organisms, including human, and that is prerequisite of their further development. Its parts are generally air, water, rock, soil, organisms, ecosystems and energy [5]. Environmental protection started to be discussed issue not until 18th century. The first reference of environmental protection came with the introduction of machines into manufacture as well as replacing small manufactures with industrial complexes. Increasing demands of environment started to appear mainly with development of heavy industry [4].

Environment, nature and countryside are one of the basic priority areas of the Strategy of Regional Development of the Czech Republic (CR). Its priorities are environmental protection including nature, economical usage of material and energy resources and environmental education, training and edification.

Status of environment in the CR is improving due to reduction of production in parts of industrial branches with the highest exhalations and also due to investments to facilities for environmental protection – usage of technologies to limit emission of pollutants into the air, building of sewerage plants and such. Status of individual regions is, considering natural conditions and structure of economy, significantly varied. According to evolution of particular elements the situation in regions is flawless, but according to other indicators the region could be extremely burdened [3].

In the Pardubice region, whose main sign is variety of natural conditions, various settlement densities and industrial and agricultural production, they try to fulfill five specific goals of regional development – increasing quality of elements of environment, reducing waste production, providing ecologically harmless waste disposal and eliminating harmful substances from environment. Other goals are protection and revitalization of countryside, increasing sense of ecology and responsibility of citizens and efficient monitoring of certain elements of environment.

In issues of environment it is necessary to consider not only basic spheres of environmental protection (such as waste management, water protection), but also other factors which

influence citizens of the region. It is generally about noise from traffic, status of atmosphere, which influence worsening or improvement of situation of allergenic and acute respiratory disorders in region, industry, energetics and such.

Very important point in the area of environment is even deepening the knowledge, activities and education of environmental thinking of region citizens. That is why there are projects of environmental education, training and edification realized. Since capacities in this area in the region are insufficient and unevenly distributed, it is necessary to raise level of environmental sense of the citizens and it is also necessary to aim operations to wide scale of ages from children to seniors mainly through schools, education centers, public service and specialized eco-centers [2]. Also introduction of environmental management systems which considers environmental issues and thus limit burdening of environment from the entrepreneur sphere and other subjects belong among other activities. Knowledge of citizens, companies and institutes of environmental issues is on a very low level, therefore Pardubice region aims to the following goals [1]:

- Increasing level of sense of ecology of citizens.
- Support of eco-counseling and actions in sphere of environmental education, training and edification.
- Expansion and development of network of centers of environmental education, training and edification.
- Introduction of management systems, which considers environmental issues.
- Improving current information systems in area of environment.

Based on mentioned facts, aim of this report is to bring in and summarize attitude of citizens and municipalities of Pardubice region to environmental protection and environmental status based on data gathered by questionnaires, which took place in autumn 2008.

2. Data collection: questionnaires

Questionnaires are nowadays the most frequently used method of primary data collection. Questionnaire is used in application of individual techniques. It is efficient to create questionnaire systematically in sequent steps. Generally, it is not necessary to follow the sequence strictly. Their mutual dependency leads to the fact that decisions accepted within certain step can retroactively influence approach in other steps. Steps are, according to [8], following: determination of data to be gathered, questioning process determination, evaluation of subjects of questions., determination of questions type, formulation of questions, questionnaire structure determination, questionnaire formalization, pretest, correction, final concept. During creation of questionnaire it is vital to follow goals of the project.

Data collection of the problem was carried out by questionnaires. There were two questionnaires – for citizens (questionnaire No. 1) and for municipalities (questionnaire No. 2) of the Pardubice region.

Questionnaire for citizens of the Pardubice region: In the first part of the questionnaire there are basic questions aimed at age, gender, martial status, education and habitation. That was followed by questions about citizen knowledge about nature, landscape and environmental protection. The goal of this is to find out, whether citizens of particular region have rather positive or negative opinion on status of environment and whether citizens deem that representatives are doing their best for nature and landscape.

Further points inform about environmental situation in citizens surroundings, landscape characteristics and presence of interfering elements in surroundings according to subjective opinions of citizens. Citizens can evaluate, whether it is necessary to make some changes for example in suburbs – whether or not to add more green vegetation and such.

Final part of the questionnaire contains questions referring to usage of financial grants on problematic area of nature and landscape. Citizens can express their positive or negative opinion to situation of environment, nature and landscape. Review of surveyed questions and information for needs of further processing of obtained data is shown in Tab. 1.

Tab. 1: Questions from questionnaire oriented on citizens of the Pardubice region

Attribute	Question/attribute description	Scale	Variable type	Frequency
x ₁	Region	1 - Pardubice	integer	91
		2 - Chrudim	integer	38
		3 - Ústí nad Orlicí	integer	40
		4 - Svitavy	integer	15
x ₂	Age	1 – less than 20 years	integer	22
		2 - 20 - 40 years	integer	139
		3 - 40 - 60 years	integer	21
		4 – over 60 years	integer	2
x ₃	Sex	1 – male	integer	90
		2 – female	integer	94
x ₄	Marital status	1 – single	integer	146
		2 – married	integer	29
		3 – divorced	integer	9
		4 – widow, widower	integer	0
x ₅	Education	1 – elementary	integer	2
		2 – trained	integer	19
		3 – high school (w/o graduation)	integer	7
		4 – high school (with graduation)	integer	116
		5 – AVT	integer	1
		6 - university (Bachelor)	integer	24
		7 - university (Master)	integer	15

X ₆	Are you familiar with long-term priorities of your municipality development in area of environmental management and protection of nature and countryside?	1 – yes	integer	26
		2 – no	integer	91
		3 – partially	integer	67
X ₇	Which of those branches should be given more attention?	1 – protection of nature and countryside	integer	83
		2 - urbanism and relation to landscape character	integer	7
		3 – waste management	integer	28
		4 – water regime in countryside	integer	20
		5 – air protection	integer	46
Attribute	Question/attribute description	Scale	Variable type	Frequency
X ₈	Do you think that municipal board sufficiently informs citizens about status of nature, countryside and environment?	1 – I have sufficient amount of information about the situation	integer	27
		2 – more amount of information would be welcome	integer	110
		3 – I am not given any information	integer	47
X ₉	In what way are you informed about status of environment in your surroundings?	1 – local newspapers	integer	44
		2 – special individual materials	integer	27
		3 – not informed	integer	56
		4 - other	integer	57
X ₁₀	Were you ever introduced to public discussion from area of environment (for example public discussion about ground plan)?	1 – yes	integer	39
		2 – no	integer	145
X ₁₁	Are you satisfied with newest changes of urban character of municipality, eventually changes of landscape character of your municipality?	1 – yes	integer	28
		2 – something is satisfactory, something is not	integer	117
		3 – no	integer	39
X ₁₂	Is there any building or interference with landscape that you deem inappropriate?	1 – yes	integer	89
		2 – no	integer	95

X ₁₃	Nature development should be, in your opinion, aimed mainly at:	1 – development of parks and green vegetation	integer	166
		2 – development of buildings and centers	integer	18
X ₁₄	Do you deem that citizens of your municipality should be involved to decision making about development of nature and countryside in your region?	1 – yes	integer	150
		2 – no	integer	34
X ₁₅	What is, in your opinion, status of nature in your neighborhood?	1 – nature is taken care of well	integer	28
		2 – nature in my neighborhood could use more attention and care	integer	132
		3 – nature and countryside are booth neglected	integer	24
X ₁₆	Do you think that protection of individual elements of environment in your municipality is sufficient?	1 – definitely yes	integer	15
		2 – rather yes	integer	92
		3 - rather not	integer	58
		4 – definitely not	integer	19
Attribute	Question/attribute description	Scale	Variable type	Frequency
X ₁₇	Are there enough collection spots, containers, and others for comfortable waste sorting?	1 – no	integer	121
		2 – yes	integer	63
X ₁₈	Do you think that there is sufficient amount of financial resources from municipal budget for environmental protection?	1 – yes	integer	23
		2 – I have no information about that	integer	149
		3 – no	integer	12
X ₁₉	Please state general problems, which you consider to be aggravating long term development plans of the municipality?	1 – material character	integer	123
		2 – non-material character	integer	61

X ₂₀	Which of following should be paid more attention in your municipality?	1 – development of housing construction	integer	23
		2 – industrial zone development	integer	3
		3 – investment activities	integer	57
		4 – consideration of environmental protection needs	integer	101
X ₂₁	Do you think that your municipality sufficiently uses grant resources for environmental protection?	1 – yes	integer	24
		2 - I have no information about that	integer	116
		3 – no	integer	44

Questionnaire for municipalities of the Pardubice region: This questionnaire engaged, in addition to basic municipality characteristic, following points:

- § *Scope of employment of representatives in problematic area: nature, landscape and environment* (in larger cities it is presumed that worker or group of workers would be appointed to this area; smaller villages with smaller number of representatives do not have capacities to appoint worker to one area and thus the issue is handled by whole municipal council; more efficient way is to appoint one worker to the topic, however smaller villages do not have sufficient capacity);
- § *Infliction of municipality in landscape* (refers to nearness of protected area, NATURA 2000 locality, memorable tree and such; There is also point about presence of protected species and also about existence of territorial system of ecological stability; municipalities, which have such location within their cadastral, usually have obligation to pay more attention to these locations and financial support);
- § *status of dangerous waste collection in municipality and its frequency and also waste collection in spring and fall* (every municipality should conduct collection at least twice a year in order to prevent illegal dumps and littering of dangerous waste in public places; in larger cities there are fixed collecting locations, where people can junk dangerous waste during the year.; in this area there is one question left, namely illegal dump; statistic research implies that most of municipalities encountered illegal dump within their territory; regular waste collection and containers furnishing can rationally prevent illegal dumps);
- § *air quality checking*;
- § *floods* (in recent years issues of flooding are upcoming and thus research was conducted to find out whether the municipality was flooded in recent years and whether the municipality has a crisis flood plan prepared. In the Pardubice region there are critical areas nearby bigger rivers, for example the Labe, Orlice, and such; other question aims at presence of water pipes, drainage and sewerage plants).

Most municipalities expand by new housings and buildings for production and storage. That is why the questionnaire includes an important point – whether peripheral parts of municipality spreads or not. That way municipality development and also efforts of representatives to gain

new inhabitants by offering work or housing is apparent. In the last part of the questionnaire there are questions about grant drawing in environmental sphere, about existence of public notices and, above all, ways of informing citizens about measures and changes in this branch. Review of surveyed questions and information for needs of further processing of obtained data is shown in Tab. 2.

Tab. 2: Questions from questionnaire oriented on municipalities of the Pardubice region

Attribute	Question/attribute description	Scale	Variable type	Frequency
x ₁	What is the number of citizens of your municipality?	1 – less than 500 citizens	integer	63
		2 – less than 1 000 citizens	integer	26
		3 – less than 5 000 citizens	integer	12
		4 – less than 10 000 citizens	integer	5
		5 – more than 10 000 citizens	integer	8
x ₂	What is the average age of citizens of your municipality?	1 – less than 30 years	integer	8
		2 - less than 40 years	integer	64
		3 - less than 50 years	integer	50
x ₃	Is environmental problem handled by whole municipal board or is there just one particular worker?	1 – one worker	integer	16
		2 – more workers	integer	19
		3 – whole municipal board	integer	79
x ₄	Is within your cadastral unit any reserved area, locality of NATURA 2000 set, memorable tree or naturally valuable location?	1 – yes	integer	52
		2 – more than one of such places	integer	23
		3 – no, we pay the same attention to all locations	integer	39
x ₅	Do you organize regular dangerous waste collection?	1 - yes, there are permanent collection places	integer	36
		2 - yes, at least twice a year	integer	63
		3 – yes, once every year	integer	12
		4 – no, citizens can deliver over the waste in larger cities	integer	3
x ₆	Do you furnish containers for garden waste in spring and fall?	1 – yes	integer	41
		2 – no	integer	73

Attribute	Question/attribute description	Scale	Variable type	Frequency
x ₇	Have you ever encountered an illegal dump, which you had to resolve?	1 - yes, several times	integer	72
		2 - yes, once	integer	26
		3 - no, never	integer	16
x ₈	Were there any floods in past 13 years?	1 - yes, several times	integer	52
		2 - yes, once	integer	17
		3 - no, never	integer	45
x ₉	Do you have municipal critical flood plan elaborated?	1 - yes	integer	76
		2 - plan is in progress	integer	2
		3 - no	integer	36
x ₁₀	Does your municipality have a sewerage plant?	1 - yes	integer	42
		2 - drainage is in progress	integer	43
		3 - no	integer	29
x ₁₁	Does your municipality have its own water supply?	1 - yes	integer	98
		2 - water supply is in progress	integer	1
		3 - no	integer	15
x ₁₂	Is there any kind of build-up area within your municipality periphery – whether it is house-building or industrial area construction? (not considering reconstruction or modification, only projects that change urban area of the municipality)	1 - yes	integer	66
		2 - drainage is in progress	integer	26
		3 - no	integer	22
x ₁₃	Do you regularly check quality of air, water, waste analyses and such?	1 - yes	integer	78
		2 - no	integer	36
x ₁₄	Did your municipality obtain any grants in area of environment in last 5 years?	1 - yes	integer	63
		2 - no	integer	51
x ₁₅	Is there within cadastral of your municipality any kind of protected animal or plant?	1 - yes	integer	73
		2 - no	integer	41
x ₁₆	How do you inform your citizens about measures against harm to environment? – local broadcast	0 - no	integer	54
		1 - yes	integer	60

X ₁₇	How do you inform your citizens about measures against damage to environment? – press	0 – no	integer	71
		1 – yes	integer	43
X ₁₈	How do you inform your citizens about measures against damage to environment? – web pages	0 – no	integer	71
		1 – yes	integer	43
X ₁₉	How do you inform your citizens about measures against damage to environment? – other	0 – no	integer	87
		1 – yes	integer	28
Attribute	Question/attribute description	Scale	Variable type	Frequency
X ₂₀	How many regulations considering environment, nature or landscape have your municipality issued (since 2000)?	1 – less than 2	integer	82
		2 – from 2 to 5	integer	30
		3 – more than 5	integer	2
X ₂₁	Do you file elements of territorial system of ecological stability in your cadastral?	1 – yes	integer	58
		2 – no	integer	56

3. Questionnaire evaluation

451 municipalities of the Pardubice region were addressed within questionnaire enquiry. Request to fill in the questionnaire was sent to their e-mail boxes. Total number of 120 municipalities responded, which is approximately 27 %. 114 of them were used, which is 25 % (6 questionnaires included identification errors (wrong declaration of basic territorial unit)). Questionnaires for the citizens of the Pardubice region were filled in by 186 citizens. 184 questionnaires were used, since two of them had to be discarded, because they were filled in by citizens of different regions.

Questionnaire for the citizens of the Pardubice region: Enquired people were mainly between 20 and 40 years old. They were generally single citizens of the region (77 % enquired) with high school education with graduation – that was 61 % of enquired. Answers imply that people believe that municipality is trying to sustain good quality of environment, nature and landscape. They would, however, welcome more information about decisions in area of environment in their surroundings, but, above all, information about changes in landscape and nature characteristics (Fig. 1). Questionnaire further implies that a total of 78 % of enquired are not familiar with distribution of finance in this sphere. People would welcome more green vegetation, parks and on the other hand they would reduce construction of industrial zones, companies and such, with regard to environment, nature and landscape in their surroundings. That is the prevailing opinion. There are also those, who are fully content with current situation, obtain sufficient amount of information and are familiar with status of landscape in their surroundings. Last group consists of those inquired, who consider the situation bad. They

would welcome more care, more information, less estate building and most of all greater participation of citizens in decision-making about nature, landscape and environment in their surroundings (frequencies of answers on questions are stated in Tab. 1).

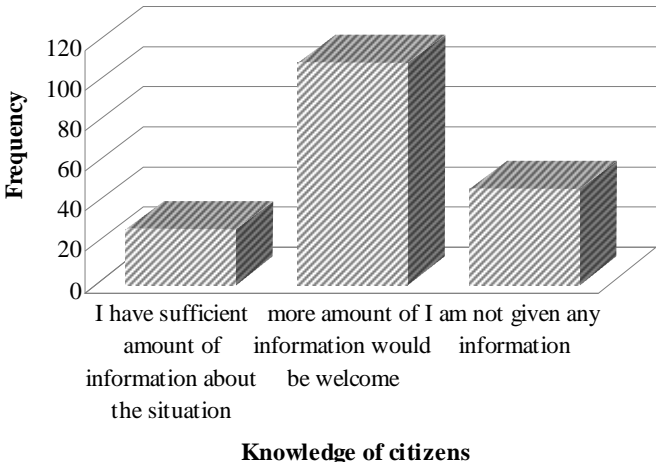


Fig. 1: Satisfaction with knowledge of citizens

It can be said that citizens of Pardubice region, which participated in questionnaires are overall rather satisfied with status of environment, landscape and nature in their surroundings.

Questionnaire for municipalities of the Pardubice region: Questionnaires were filled out by mainly smaller municipalities. From a total number of 114 of filled in questionnaires 63 were filled in by municipalities with less than 500 citizens (55 %). Situation is illustrated in Fig. 2.

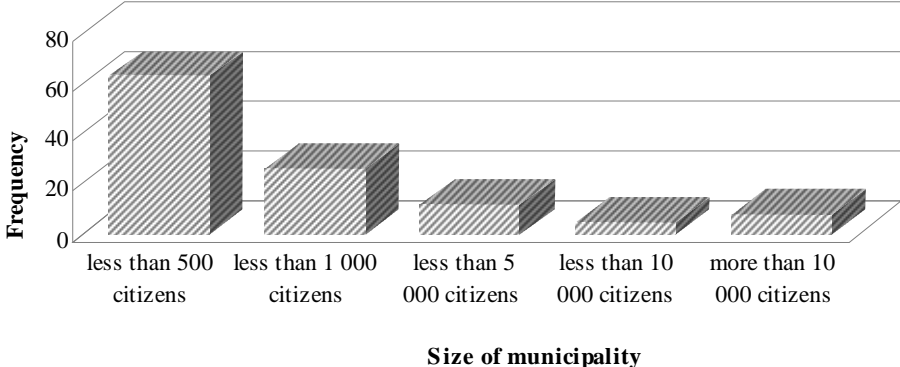


Fig. 2: Distribution of municipalities in questionnaires

In 69 % of municipalities the whole council handles environmental issues. Questionnaire was filled in mainly by municipalities which organize dangerous waste collection regularly, have or are currently building water pipes, drainage and sewerage plant, flood crisis plan, water and air analysis and file a protected species in municipality cadastral. Enquired municipalities thus largely fulfill terms of nature, landscape and environment protection. Information for citizens is generally published on municipality web pages or by local broadcast and press. A number of municipalities (58 %) are also building-up an estate.

Very good news is that only 19% of municipalities from total number of 114 do not have sewerage plant and do not even plan to build one. Graphical representation is shown in Fig. 3. These sewerage plants help the environment (waste is not returned to the nature). Great

positive for environment thereby is that most of municipalities are currently building sewerage plants (frequencies of answers within individual questions are stated in Tab. 2).

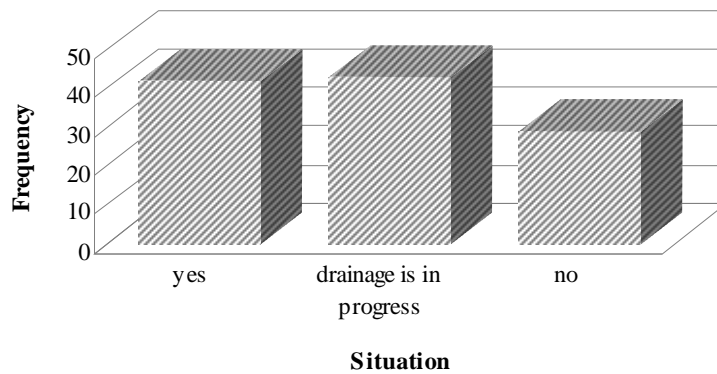


Fig. 3: Number of municipalities with sewerage plant

4. Conclusion

In 2004 the government approved two documents, which were significant for directing environmental politics in following years – State Policy of Environment until 2010 and Strategy of Sustainable Development of CR. This strategy makes an effort to limit imbalance in mutual relations among social, economical and environmental piers of society development. This policy comes also from the fact that – with our admittance to the European Union – environmental protection will need expensive investments in area of air protection, surface and underground water, waste management and such. Significant part of these investments will positively influence even regional development policy, considering employment rate and region development [3]. Sphere of “nature, landscape and environment” was defined within environmental pier of the strategy. This priority area is engaged in soil annexation and efficiency of territory estate, anti-flood measurements, amount of waste generated and its usage and environmental education and edification. Based on data collection from the end of 2008, attitude of citizens and municipalities of the Pardubice region to fulfilling goals of particular priority area it was solved in this paper.

Based on the conducted research data matrix $D_{municipality}$ (114×21) was created, which consists of 114 municipality description described by 21 characteristics (questionnaire inquiries) and data matrix $D_{citizens}$ (184×21), which contains attitudes of 184 citizens of Pardubice region. Attention was paid mainly to municipalities, since the questionnaire for citizens of the Pardubice region refers to individual subjective opinions of individual people based on their own attitude, knowledge, information and experience. Municipalities, on the other hand, should pay more attention to landscape, environment and thus respect statutory obligations about environmental protection and related regulations (for example laws [6,7]).

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