

## ARTICLES

**ENVIRONMENTAL AWARENESS IN SLOVENIA THROUGH RESIDENTS' RELATIONSHIP TO WASTE**

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UDC: 911:502.12(497.4)

COBISS: 1.01

ABSTRACT

***Environmental awareness in Slovenia through residents' relationship to waste***

The development of ecological thinking among Slovenian geographers goes back less than half a century. A high level of environmental awareness is a condition for people's environmentally friendly behavior. In turn, proper informedness about the environment is a precondition for awareness, and it seems that in Slovenia in the last decade people's informedness about environmental problems and sustainable living has increased. People are expressing greater inclination toward environmental protection, but for only a minority is a healthy and orderly living environment also a value that they are really willing to do something for in practice.

KEY WORDS

*informedness, awareness, value, environmental protection, waste, Slovenia*

IZVLEČEK

***Okoljska ozaveščenost v Sloveniji skozi odnos prebivalcev do odpadkov***

Razvoj okoljske misli med slovenskimi geografi sega manj kot pol stoletja v preteklost. Visoka okoljska ozaveščenost je pogoj za okolju prijazno vedenje ljudi. Ustrezna informiranost o okolju pa je predpogoj za ozaveščenost in zdi se, da smo v Sloveniji v zadnjem desetletju povečali stopnjo informiranosti o okoljskih problemih in trajnostnem načinu življenja med ljudmi. Ljudje na ravni stališč izražajo večjo naklonjenost do varstva okolja, vendar pa le manjšini pomeni zdravo in urejeno življenjsko okolje tudi vrednoto, za katero so resnično pripravljeni nekaj narediti.

KLJUČNE BESEDE

*informiranost, ozaveščenost, vrednota, varstvo okolja, odpadki, Slovenija*

*The article was submitted for publication on August 24, 2011.*

## 1 Introduction

The industrial revolution introduced not only products that made people's lives easier, but also large-scale pollution. By definition, pollution is the human introduction of substances and energy into the environment that likely represent a threat to human health, that are harmful to living organisms and ecosystems, that cause damage to buildings or infrastructure, or that interfere with the proper use of the environment (Holdgate 1979). It is too late if one starts tackling these problems and seeking solutions only when they become obvious (Waring and Glendon 1998). With suitable environmental awareness, people can significantly reduce intentional environmental damage.

Environmental protection, as understood today, is activity by human society characteristic from the beginning of the second half of the twentieth century onwards. In the most general sense, this is a concern for preserving the still unspoiled environment and for improving the environment that is already affected, and perhaps even overburdened. It is primarily based on the changing relationship of man to the environment. The history of geographical research on environmental pollution and on influences and consequences has been brief in the global sense, and even more so in Slovenia.

In the early 1970s, Slovenian geographers started emphasizing the significance of environmental protection and its features. Initially they drew attention to excessive environmental contamination by individual processes (Orožen Adamič 1970; Zelena ... 1972). Later Radinja (1974) emphasized protection and management of the entire environment with its natural and manmade elements. Ilešič (1979) was one of those to primarily emphasize nature protection within environmental protection. Plut's book *Slovenija – zelena dežela ali pustinja* (Slovenia: A Green Land or a Desert; Plut 1987) draws attention to deterioration of the environment in Slovenia and to the spatial-ecological contradictions of social development. A year later the same author published the volume *Belokranjske vode* (Waters of White Carniola; Plut 1988), which comprehensively presented the problem of pollution of the Krupa River with polychlorinated biphenyls (PCBs). Informing the public of this pollution problem in an important water source and along with this the threat to human health was the greatest milestone or trigger for starting to draw public attention to environmental pollution in Slovenia (Polajnar Horvat 2009). At the end of the twentieth century, Slovenian geographers started emphasizing the inevitable transition from an anthropocentric understanding of the environment to an eco-centric one as well as sustainable development (Plut 1997), and this idea is still being followed today.

An especially important link in environmental protection is people, with their behavior and relationship to the environment. Environmental awareness depends on many factors, the influence of which is exceptionally complex because of the way they interact with one another and exert joint effects. The factors that affect environmental consciousness and the human relationship to the environment were first dealt with by Špes (1998), the first female Slovenian geographer to study environmental degradation as a factor of urban landscape differentiation and the influences of a degraded environment on people. Šterbenk (1998) wrote about environmental protection and environmental awareness among the population living in a coal-mining area. In recent years, Smrekar (2006; 2011) has dealt with seeking an environmentally aware body that could represent a core for expanding the idea of environmental protection as a whole and also its individual features.

With economic growth, the use of natural resources also increases, resulting in increased production of larger quantities of waste. Although waste is an important source of pollution and a threat to all elements of the environment, normative regulations for waste management have long been one of the most poorly regulated areas of environmental protection in Slovenia. The reasons can be sought in the social relationship to waste and the way it is handled (Viler Kovačič 2001). The situation has been improving, in any case, since 1993, when the Environmental Protection Act was adopted. The implementation of this law provided a new approach to solving the problem of environmental protection in general and also the problem of waste management, which is increasingly more pressing. With acces-



MIHA PAVŠEK

Figure 1: *Illegal dumps remain an unresolved environmental problem in Slovenia.*

sion to the European Union, the legislative framework was substantially improved. In any case, this is not sufficient; all stakeholders must be informed, educated, and made aware.

Approximately seven million tons of waste was produced in Slovenia in 2008, of which 13% was municipal waste, in which removal (dumping) is still the most common form of treatment. In 2008, 29% of municipal waste was reprocessed; the majority of this was recycled (95%). The quantity of municipal waste collected from 2003 to 2009 increased from 402 kg per person to 449 kg per person, which was somewhat less than in 2008 (453 kg), when the peak amount to date was recorded. Despite the increase in the quantity of municipal waste produced, Slovenia is still considerably below the European average because in 2007 the 27 EU countries produced an average of 522 kg of waste per person. In the majority of these countries the quantity of municipal waste is growing (Internet 1).

A very pressing, unsupervised, and still almost completely untamed problem is that of illegal dumps (Figures 1 and 2). In 2010, the society Ecologists without Borders prepared the first comprehensive digital list of illegal dumps in the entire country, and updated this in 2011, recording 10,883 with a total volume of 283,190 m<sup>3</sup> covering 379.9 ha (Kranjc 2011). Those carrying out the survey estimated that approximately two-fifths of this waste is construction material. Construction waste is often a time bomb because it also conceals hazardous waste (e.g., roofing and material for wiring, plumbing, and fixtures) that constitute a significant direct threat to the environment, especially to soil and water. In 2010, 270,000 people participated in a volunteer effort that removed 70,000 m<sup>3</sup> of primarily municipal waste from 7,000 dumps. This is the equivalent of ten soccer fields filled to a height of one meter (Smrekar 2010). They hardly dealt with construction waste at all, and it is the illegal dumping of construction waste that represents one of the major problems that is currently nearly impossible to solve.

In the EU recently, in addition to the effective collection and separation of municipal waste, the waste-management hierarchy has seen increasingly greater emphasis on preventing the production of waste. In Slovenia this is still in the initial stage because changes are necessary in both the manufacture of products as well as in their sale and consumption, which is a condition for suitable environmental awareness among the population.

We carried out a waste-related study in four selected municipalities to determine how many people are environmentally friendly and to what degree. Often the population's lack of environmental awareness is shown by the many illegal dumps threatening the environment.

## 2 Methods and areas

The findings presented in this article are the result of an extensive survey (Smrekar and Breg 2008), which was based on fieldwork carried out in 2008. The subjective method of direct interviewing answers many questions for us: how the local population understands the environment it lives in, degrades it, perceives its degradation, accepts changes, and is willing to react to them and actively contribute to improving the state of the environment.

This article presents questions at three levels (from the abstract to actual practice) because we wished to cancel out the tendency toward socially desirable answers that can often be seen at lower levels. Methodological checking by sociologists shows that those interviewed often report a higher frequency of desirable behavior (e.g., going to libraries and voting) than in reality, or a lower frequency of behavior that could damage their image (e.g., drinking alcohol; Malnar 2002). For the sake of comparison and presenting the findings in a broader European context, part of the questions were taken from a questionnaire by the project International Social Survey Program: Environment (ISSP 2002).

The adult population included in the survey came from four regions; 400 surveys were conducted in the City of Ljubljana, and 200 each in the municipalities of Bohinj, Logatec, and Sežana. Illegal dumping is a major problem in the City of Ljubljana, a moderate one in the municipalities of Sežana and Logatec, and negligible in Bohinj. The entire sample therefore included 1,000 people. Sampling is necessary because it is not realistic to try to interview the entire population (Kalton and Vehovar 2001). Each municipality was divided into several parts and a planned number of interviews conducted in them, which avoided the problem of excessive spatial concentration.

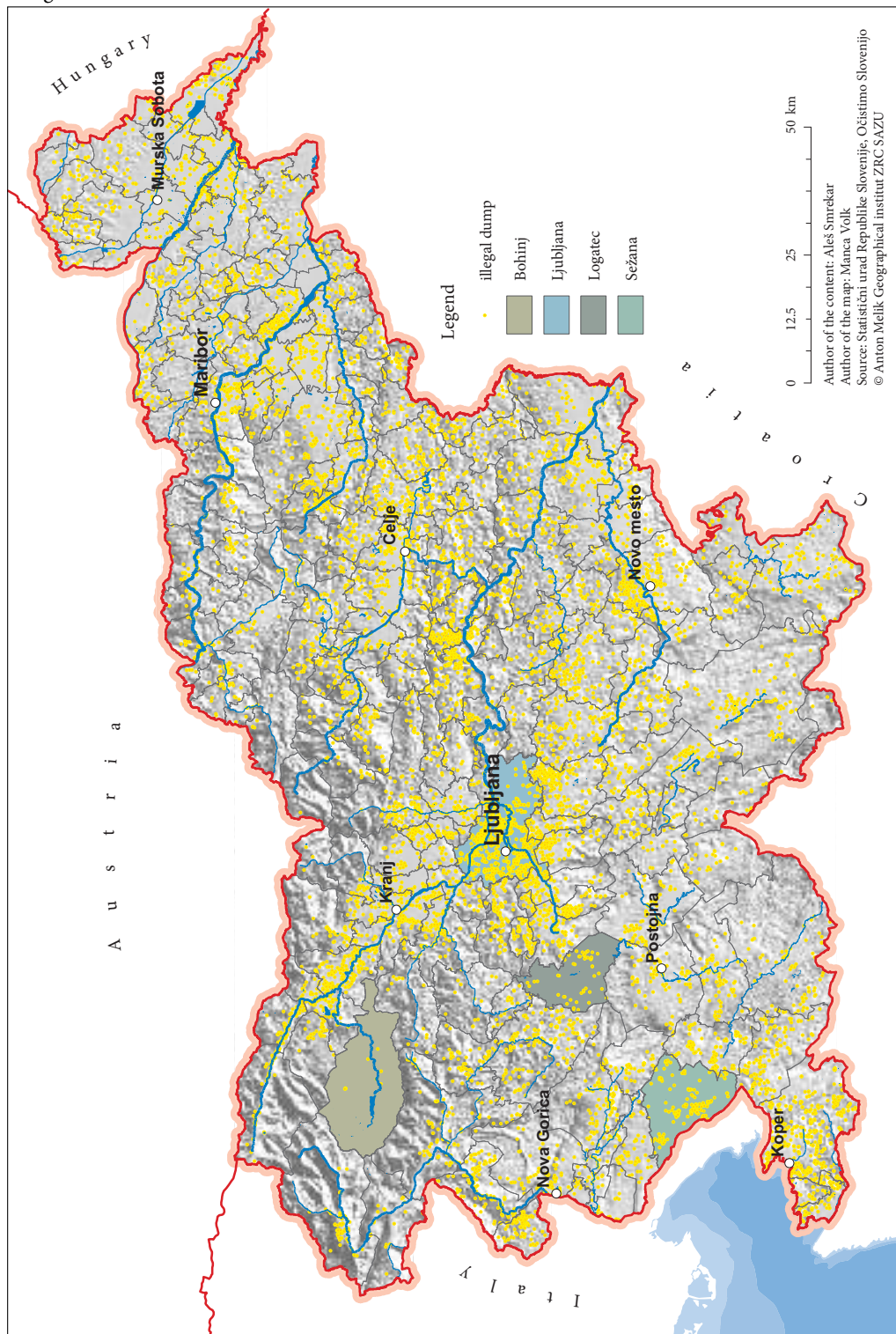
In selecting our interviewees, we followed three demographic criteria: age, sex, and education. Based on these criteria, we achieved a representative sample. The results of the field interviews were entered into a digital database and statistically processed using Excel and SPSS.

The City of Ljubljana largely lies at the intersection of Alpine hills and a valley. This is the most populous municipality in Slovenia. The municipal center, Ljubljana, is also the capital of the country. The municipality is also important for the surrounding countryside from the perspective of business, education, culture, and administration.

The Municipality of Logatec lies in the heart of Inner Carniola (Si. *Notranjska*) at the intersection of the Alpine and Dinaric areas. Its development is driven by the wood, paperboard, and other industries and services. Much of the population is young because many of the settlements are increasingly bedroom communities somewhat over 30 kilometers from Ljubljana.

The majority of the Municipality of Bohinj lies in the heart of the Julian Alps, in Triglav National Park, the only national park in Slovenia. Most of the settlements are in the two Bohinj valleys, with a total length of just over 20 km and a width of no more than 5 km. The main economic activity is tourism (e.g., walking, hiking, swimming in the lake, and skiing) with 300,000 overnight stays per year.

*Figure 2: Selected municipalities and locations of illegal dumps in Slovenia. ►*



The Municipality of Sežana is on the border with Italy; in addition to the Karst-Mediterranean character of the land, this location offers good development potentials, especially for tourism (e.g., casinos and the stud farm in Lipica). The population is increasingly aging.

Table 1: Municipalities studied in figures (Internet 2; Internet 3).

Data / municipality	Bohinj	Ljubljana	Logatec	Sežana	Slovenia
Area (km <sup>2</sup> )	334	275	173	217	20,273
Population (2009)	5,263	278,314	12,956	12,828	2,042,335
Number of people employed	2,222	117,968	5,859	5,697	858,171
Average gross monthly salary per employee (€)	1,081.91	1,727.99	1,326.58	1,363.36	1,438.96
Number of illegal dumps	9	1,027	50	167	10,883

### 3 Willingness to participate in environmental conservation

This article presents only part of a broader study (Smrekar and Breg 2008) that answers questions about the population's relationship to the environment and its behavior in handling waste. Three levels of questions were used to present the difference between environmentally (un)friendly behavior in the abstract and in reality.

In principle, people support environmental protection without reservations, and so we gave those polled very general and agreeable statements. We intentionally wrote grammatically negative statements, such as »There's no point in trying your best to take care of the environment if others don't do so too« (Figure 3). The average answer scored 2.1. If the results of this statement are converted into positive

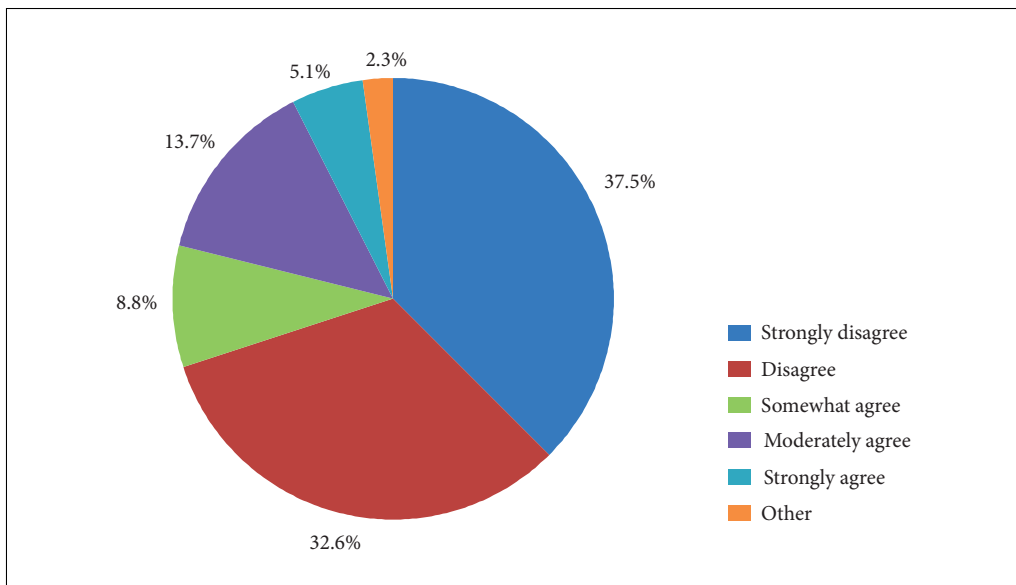


Figure 3: Respondents' agreement with the statement: »There's no point in trying your best to take care of the environment if others don't do so too« (n = 1000).



responses, this yields a score of 3.9 on a five-point scale, which in principle shows very good support for protecting the environment. The relative majority, a full 38.4%, chose the response »Strongly disagree – 1,« followed by »Disagree – 2« with 33.0%, in contrast to only 5.1% with »Strongly agree – 5.«

According to the results of the survey, the most environmentally friendly attitude was expressed in Logatec (1.7), followed by Ljubljana (2.1) and Sežana (2.3); the results for Bohinj stood out somewhat, at 2.6.

In comparing the responses »Strongly disagree – 1« and »Disagree – 2« between groups with various levels of education, we noted a considerable similarity in the responses from the population with an elementary school, vocational, and secondary-school education (approximately two-thirds of responses at 1 and 2), whereas the most highly educated stood out significantly (approximately three-quarters).

It is recognized that in Europe in general as well as in Slovenia, the level of environmental informedness has been growing over the years, and so it is not surprising that those surveyed in the greater Ljubljana area in 2004 (Smrekar 2006) answered the same question at an average of 2.4, but four years earlier those surveyed across all of Slovenia (ISSP 2002) answered with an average of 3.1. The average of 14 European countries in the same survey (ISSP 2002) was closer to the results of the current study, with an average of 2.8, in which in comparison to Slovenia there was more »agreement« in Portugal (3.5) and Northern Ireland (3.2), and the same in Spain (3.1). This contrasted with the responses from the Finns (2.2.) and Swedes (2.4.), who »Disagree – 2.«

The question of respondents' willingness to pay a significantly higher price for various articles (Figure 4) in order to protect the environment was designed to determine people's willingness to actively take part in environmental protection through considerably higher financial contributions or through a decrease in their standard of living.

According to the results of the survey, payment would be fairly well accepted because the overall score was 3.0, with nearly one-third with the predominant answer »Neither willing nor unwilling – 3«. This was followed by the answers »Fairly willing – 4« with 27% of the responses and »Fairly unwill-

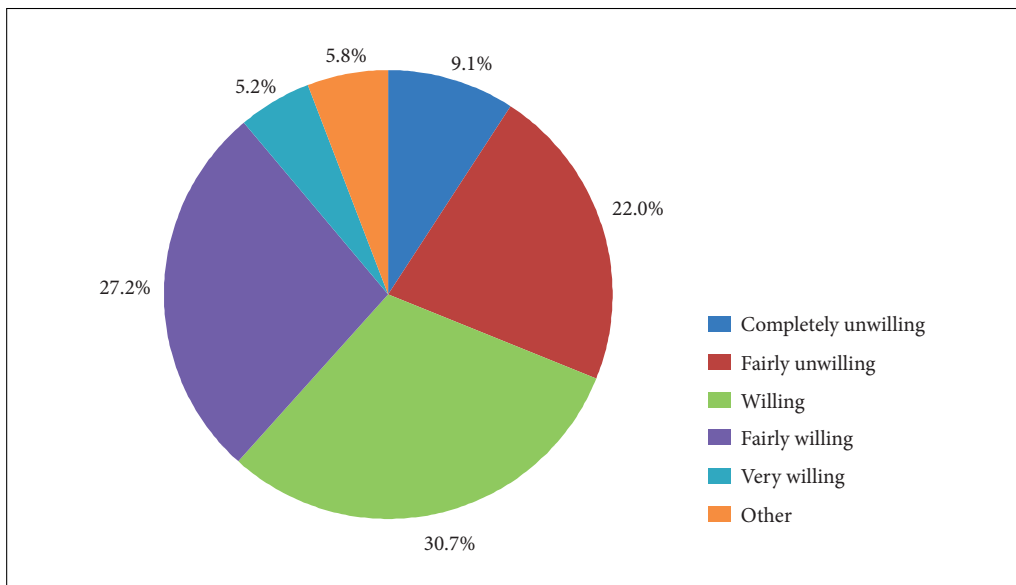


Figure 4: Willingness to pay a significantly higher price for various articles in order to protect the environment (n = 1,000).

ing – 2« with 22% of the responses. Only 9% of respondents indicated that they were »Very unwilling – 1« to financially contribute to protecting the environment.

An examination of the regions showed that there was no significant difference between Logatec (3.1), Ljubljana (3.0), and Sežana (2.9), but the results from the Municipality of Bohinj (2.7) stood out somewhat in the negative sense.

Just as in the previous question, here there was a considerable similarity in the answers provided by those with primary-school (31.3%), vocational (31.1%), and secondary-school (28.3%) educations, with the answers »Very willing – 5« and »Fairly willing – 4.« For this question, those with a tertiary education showed considerably greater willingness (39.6%).

The findings of this study deviate insignificantly little from the survey results based on a sample from the greater Ljubljana area (2.8; Smrekar 2006) and also from the survey results based on a sample covering all of Slovenia and a sample of 14 European countries from 2000 (ISSP 2002), with scores of 3.2 and 3.0, respectively. People were least willing to pay a significantly higher price for articles in Portugal (2.5), the Czech Republic (2.7), and perhaps somewhat surprisingly Finland (2.6), and the most willing in the Netherlands (3.5) and surprisingly, in comparison with Finland, in Norway (3.3).

Nearly two-thirds of Ljubljana residents in 2004 (Smrekar 2006) believed that the state (72.8%) was the body that the population most expected to collect sufficient money for proper environmental management. The same respondents also recognized businesses (68.8%) that threaten the environment as significantly more appropriate for providing funds than the population (21.1%) living and working in the local environment.

We presented the respondents with the Foundation for Cleaning Up Illegal Dumps, which wants to improve the state of the environment in their area. The most urgent cases of illegal dumps were presented, which need to be cleaned up as soon as possible in order to prevent contamination of the groundwater, soil, and vegetation, and to protect human health. The funding for these programs would be collected through a fixed surcharge on electricity bills two months after the survey was conducted, in which the charge would appear as an independent item on the bill. Power companies, as uninvolved

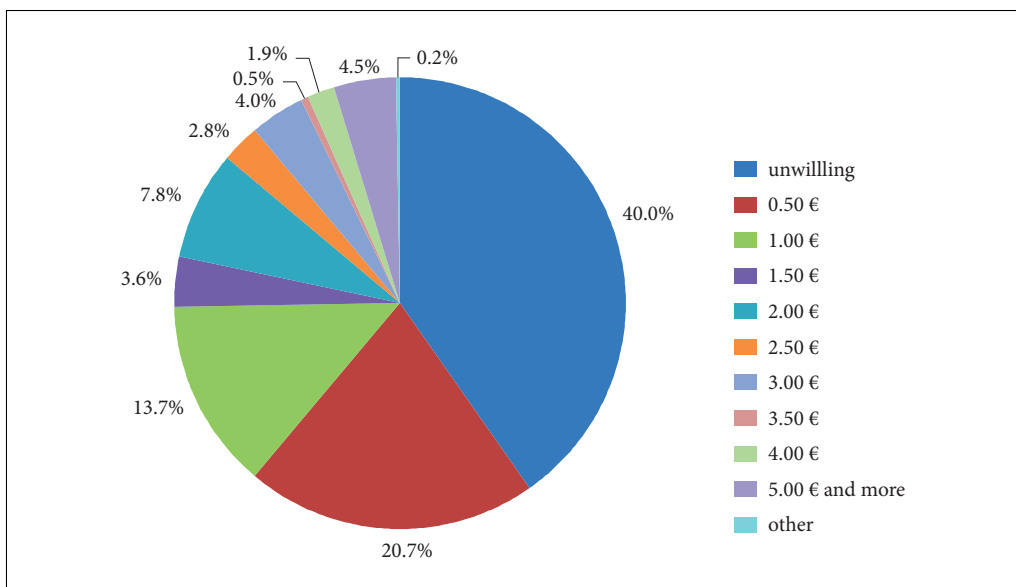


Figure 5: Willingness to pay the foundation the highest monthly contribution to clean up illegal dumps ( $n = 1,000$ ).



organizations that the foundation would conclude an agreement with, would transfer the money collected to the Foundation for Cleaning Up Illegal Dumps as a non-profit fund, which would use all of the money collected exclusively for solving these issues. Of course, this was a fictitious organization because we believed that only in such a convincing and clear way would it be possible to measure people's actual willingness to help rescue an increasingly threatened environment. The questions connected with the foundation were so convincing and realistically composed that none of the 1,000 respondents expressed any doubt about the reality of this fund.

We were interested in whether those surveyed were willing to pay € 0.50 per month to solve these issues. Nearly three-fifths (59.5%) decided in favor of such a negligible amount. However, the differences between the areas examined are not surprising. People were least enthusiastic about the foundation in the Bohinj area (43% of them were willing to contribute € 0.50 per month), and they were more willing to do so in Sežana (52.0%) and Logatec (54%). At first glance, Ljubljana residents appear to be unusually generous, with almost three-quarters (72.5%) willing. However, the problem of illegal dumping affecting groundwater is so pressing in Ljubljana that the media have also dedicated much attention to this, which has had an effect on public opinion; on the other hand, in Bohinj this problem is almost never encountered.

We were also interested in whether respondents were also willing to make higher monthly contributions to the foundation than a merely symbolic € 0.50 per household: that is, € 1.00, € 2.00, and up to € 5.00 (Figure 5). A bit more than two-fifths of respondents (40.5%) immediately decided they were not willing to pay even € 0.50, and another one-fifth (20.7%) believed that € 0.50 per month was completely sufficient. Thus, just under two-fifths of those questioned (38.8%) were willing to make a contribution greater than the basic one, 21.5% were willing to pay € 2.00 or more, and only 13.7% of respondents were willing to pay € 2.50 or more. Only 4.5% of respondents were willing to make the highest suggested contribution.

The large difference between willingness to pay € 2.00 or € 2.50 shows that probably only a good tenth of respondents are actually willing to contribute something to protecting the environment. A similar breaking-point in willingness was already seen in 2004 (Smrekar 2006), when just over one-fifth (20.8%) were willing to contribute 500 Slovenian tolar (SIT; € 2.09) and less than one-tenth (7.7%) were willing to contribute 600 SIT (€ 2.50).

Of course, willingness to support the foundation also depends on the respondents' education. The most reserved were those with vocational (7.0%) and primary-school (7.5%) educations. Those with a secondary-school education were more inclined (10.9%), and there was a great difference for those with a tertiary education, who were most willing (72.6%).

## 4 Conclusion

We wanted to determine the size of the Slovenian population actually willing to pay for environmental protection as well as their education level and how much they are willing to contribute. To this end we carried out a study on a sample of 1,000 people living in four Slovenian municipalities. Some of them favor environmental protection in the abstract, but this still does not represent a value for them. A value is something more, in which a person recognizes a great principle value and therefore gives priority to it (Slovar ... 1995). People that actually do something for the environment give priority to this kind of lifestyle.

The selected questions from the survey studied can be interpreted at multiple levels. At the first level, the responses remain at the level of individuals' opinions and primarily involve hypothetical behavior by those surveyed. In the majority of such surveys in Slovenia in the last decade, this amounts to between one-half and three-quarters of those surveyed, depending on the given situation in society and the way the question is posed. At the second level one finds answers that approach individuals'

actual behavior in society because we want to find out from them how prepared they are in reality to finance environmental projects, although the questions are still posed in a fictitious enough manner that the respondents are aware that they can provide socially desirable responses without any consequences. The share of such people in Slovenia has been about one-third for quite some time now. At the final, highest level, one encounters seemingly active environmental behavior. In this group one can include those that coordinate and promote the idea of environmentally friendly behavior. This includes between one-tenth and one-fifth of people in Slovenia. Within this framework is also the number of the participants in the one-day drive »Let's Clean Up Slovenia in One Day,« which took place across the entire country in 2010 and 2012.

In recent years, the Slovenian population has been increasingly informed about environmental problems and environmentally friendly behavior. It is therefore not surprising that in the responses at the first level one senses a palpably increased abstract striving for environmental protection, but at the third, actual level this is no longer perceived. Thus it is also possible to confirm in Slovenia that there is a very long path from increased environmental informedness to actual environmentally friendly behavior.

Our findings are also confirmed by the results of the European environmental survey (Internet 4). Protecting the environment has importance in theory in Slovenia because this is what 98% of respondents state, whereas the European average is three percentage points lower. On the other hand, providing more information about environmental issues would be effective for solving environmental problems for only 22% of respondents in Slovenia and 26% in Europe as a whole. These results confirm that residents of Slovenia are more environmentally aware than the European average in principle, but less so in their actual behavior.

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