Macedonian Journal of Ecology and Environment
Vol. 27, issue 2
pp. 89 - 98
Skopje (2025)
ISSN 1857-8330 (on-line)
ISSN 0354-2491 (print)
Original scientific paper
Available online at www.mjee.org.mk
DOI: https://doi.org/10.59194/MJEE2527289t

Policies without behavioral results or when environmental policy becomes robust

Tatiana Tomova*, Simeon Petrov, Elena Kalfova, Kaloyan Haralampiev

Sofia University "St. Kliment Ohridski", Sofia, Bulgaria

Abstract

The article focuses on changing individual attitudes and behaviors as key factors for resilient environmental policy. Through representative field studies using a specially designed questionnaire, the subjectively declared levels of ecological perceptions and pro-environmental behaviors of citizens at the national level in Bulgaria and residents of one of the country's municipalities, which self-identifies as a "green municipality", were compared. The main research question is whether citizens in a local community, where there is a sustainable agreement on broadly formulated environmental goals and corresponding active pro-environmental policies, demonstrate a greater personal commitment to the environment, materializing in increased levels of knowledge and individual pro-environmental behavior. The main conclusion is that active environmental policy does not necessarily change public attitudes and individual behavior following their goals.

Keywords: ecological perceptions; pro-environmental behaviors; behavioral results; environmental policy; Bulgaria

Introduction

In recent years, investments in ecology have been growing continuously. At the same time, there are no significant achievements anywhere concerning sustainable solutions to major environmental problems. The reasons are sought in policies, respectively, in their effectiveness, relevance, consistency, sustainability, etc. This leads to a continuous search for new approaches and tools, which, however, fail to break down the barriers in the policy-results chain.

In our opinion, the problem is not so much related to the irrelevant environmental policy tools, but to the lack of understanding of the results of their implementation, respectively, to the inadequate planning in practice. The question of the policy's results is more related to its evaluation than to its development. Therefore, the results are primarily associated with the change in the values of the indicators for the objectives. However, policies have an intermediate result, which, however, is neither purposefully created, nor planned, nor monitored. It is about the change in the behavior of those individuals on whose private, independent activities the achievement of the objectives of the policies depends. The shift of pollution sources from production processes to consumption processes makes pro-environmental behaviors of citizens essential for reducing pollution (Carducci et al. 2021). The increasingly relevant behavioral perspective focuses on the effects of perceptions and behaviors at the individual level.

The traditional explanatory approach assumes that affected individuals follow regulations, respond positively to incentives, and accept the arguments of communication tools as the main motive for their actions. However, they can evade regulations, fail to respond to incentives, and accept official arguments without this affecting their behavior.

Submitted: 13.08.2024;
Accepted: 28.10.2025

* Author for correspondence: t.tomova@phls.uni-sofia.bg

Although in our opinion the above research problem is generic, in the field of environmental policy, it is of essential importance. Achieving environmental goals implies, among other things, a change in consumer behavior, whether it is expressed in limiting consumption or in redirecting it towards eco-friendly products and services. Since in the conditions of capitalist reproduction, consumption is a personal sphere in which individual choice has priority over any collective goals, the topic of eco-behavior and the question of why people avoid acting pro-environmentally has its reserved place in research.

There are at least two explanations that provide an answer to the above question (Gaspar de Carvalho et al. 2010). The first identified reason is related to the existence of "negative constraints or barriers" that make people fail in their pro-environmental behavior despite the "correct" (positive) attitudes, intentions, skills, and information that they have or receive. The discrepancy between attitudes and behavior is a consequence of the multifactorial conditioning of individual behavior – the fact that someone considers ecology important does not necessarily mean that he/she use public transport. The second reason for the discrepancy between beliefs and actual behavior is related to the influence of unconscious factors, due to which habits and established behavioral patterns can take precedence over conscious pro-environmental choices.

If we assume that the pro-environmental behavior of individuals is a natural intermediary in achieving environmental goals, then logically, policies should be able to change it. The entire current theory of nudge is related to the development of tools to overcome negative barriers or unconscious factors in pro-environmental behavior. However, our article is not about nudge as a relatively new type of policy tool. It is about the need, when developing policies, to plan goals and relevant tools that will influence individual behavior by changing it in the direction of achieving the impacts for which the policies are undertaken. In this sense, for us, nudge is not just one of the possible tools. It is a mandatory approach that should make people accept the goals of environmental policy as a commitment and help them overcome their behavioral stereotypes.

This article presents the results of the comparison between two empirical studies of pro-environmental behavior, representative of different populations of citizens, conducted in parallel – one study is representative of the adult Bulgarian population, the other – of the residents of a Bulgarian municipality with an actively declared green policy and active civil participation in it.

Following Stern (2000) environmentally significant behavior can be classified into four types: 1) environmental activism (e.g. participation in social movements), 2) non-activist behaviors in the public sphere (e.g. accept or support public policies), 3) private sphere environmentalism (e.g. actions in the household), and 4) other environmentally significant behaviors (e.g. actions in the workplace). The study focuses on the third type of pro-environmental behavior and, to a lesser extent, on the first type.

We present the results to demonstrate that active environmental policy and even the broad consensus on its common goals do not guarantee direct change in behavioral attitudes or individual environmental behavior. This makes it reversible and undermines the sustainability over time.

Theories of pro-environmental behavior change and measuring it attempts

The factors and variables that stimulate pro-environmental behavior have been the subject of theoretical interest and empirical verification for at least several decades. There are many concepts of environmentally responsible behavior (Akintunde 2017). At least 84 theories and models of behavior change have been summarized (Michie et al. 2008). Theories related to behavior date back to the 1960s (Pirmoradi et al. 2021). In terms of the environment, the beginning dates back to 1975 and is associated with the theory of reasoned action (Fishbein and Ajzen 1975). At the same time, environmental decision-making has also been studied from the perspective of social psychology through the theory of interpersonal behavior (Triandis 1977). The idea of a direct relationship between knowledge, attitudes, and behavior has long been central to research. The first, highly simplified, models of pro-environmental behavior find a direct influence of environmental knowledge on environmental attitudes and pro-environmental behavior. The models of the 1970s have been criticized for not understanding that increasing knowledge and perceptions do not necessarily lead to pro-environmental behavior. The traditional model is not based on rigorous experimentation, but rather on a few assumptions interpreted from previous work. The ultimate message is that education on various environmental issues can change human behavior, because if people were better informed and aware of environmental problems, they would be motivated to behave environmentally responsible manner.

Subsequent research refutes the explicit certainty of this belief and concludes that multiple variables interact to varying degrees to influence the perception of environmentally responsible behavior (Akintunde 2017). This also leads to a gradual paradigm shift. The behavioral model provides a basis for considering the possible relationship between existing environmental knowledge, environmental awareness, and attitudes, and how these can be translated into action or inaction, but good knowledge of environmental variables may not necessarily mean good and sustainable environmental behavior. On the other hand, a lack of environmental

knowledge or awareness may also not necessarily be a guarantee of "bad" environmental practice.

The Theory of Responsible Environmental Behavior was proposed by Hines et al. (1987). The model argues that intention is a major factor influencing pro-environmental behavior and focuses on key variables such as: intention to act, locus of control (internalized sense of personal control over events in one's life), attitudes, sense of personal responsibility, and knowledge. According to the model, the sense of internal control has a very significant impact on intention to act. Knowledge alone has already been interpreted as being extremely insufficient for environmentally responsible action, because while some people's knowledge of the environment might prompt them to have a favorable attitude, other individuals may be influenced by their internal and external control, influenced by the actions of others.

The Theory of Interpersonal Behavior (Triandis 1977) argues that in any situation, behavior is influenced by intention and, to a large extent, by habitual reactions and, ultimately, by situational pressure and conditions. From this perspective, intentions are conditioned by social, emotional, and intellectual considerations. Three key values for the adoption of a new ecological model are considered: biological, altruistic and egoistic.

The Theory of Reasoned Action was proposed by Ajzen and Fishbein. They developed a theory based on the understanding that attitudes do not directly determine behavior, but rather influence behavioral intentions that shape human actions (Ajzen and Fishbein 1980). Human behavior is based on rational thinking, and the model predicts that attitudes are related to behavior only to the extent that both relate to the same valued end-state of existence. Intention to act has a direct effect on behavior and can be predicted by attitudes. These attitudes are shaped by subjective norms and beliefs and by situational factors. The Theory of Reasoned Action explains when people have good intentions, but the transition from intentions into behavior is thwarted by a lack of confidence or a sense of lack of control over behavior (Hanna 1995). This line of thought provides a basis for understanding why people may not act in a pro-environmental manner despite having good intentions. Furthermore, it is argued that based on different experiences and different normative beliefs, people can form different beliefs about the consequences of performing a behavior. These beliefs, in turn, determine attitudes and subjective norms, which then determine intention and corresponding behavior. It has been shown that the social environment mediates attitudes towards the environment. At the same time, Blake (1999) argues that a rational person does not perform an activity that contradicts his preferences. He stated that constraints fall into three general categories: (1) individual constraints; (2) social constraints; and (3) institutional constraints that influence pro-environmental behavior.

The Theory of Planned Behavior was proposed by Ajzen (2002) and considers action intention and objective situational factors as direct determinants of pro-environmental behavior. Intention itself is considered to summarize the interaction of cognitive variables, which include: (knowledge of action strategies and issues, action skills), and personality variables (locus of control, attitudes, and personal responsibility). The Theory of Planned Behavior flows out of the Theory of Reasoned Action and suggests that human behavior is influenced by three constructs of beliefs: beliefs about consequences, expectations of others, and things that may support or prevent the behavior (Hammond et al. 1995). The model provides further explanations of the relationship between knowledge, behavior, behavioral intention, and actual behavior. Knowledge is not a specific component in the model, but "attitudes are a function of beliefs" (Schifter and Ajzen 1985) since in this context, beliefs refer to knowledge about a specific behavior.

The Theory of Basic Values (Shalom 1977) also provides a framework for understanding altruistic and prosocial behavior. Behavior is believed to be primarily influenced by norms. These norms arise from two direct psychological phenomena: awareness of behavioral outcomes and acceptance of personal responsibility. It has also been used by Stern et al. (1999) to examine environmental behavior in his theory of values, norms, and beliefs. The theory is based on a causal chain of five variables leading to behavior. Three types of passive environmentalism are considered: environmental citizenship, behavior in the private sphere, and political activism. Environmental practices depend on a wide range of causal factors, both general and behavior-specific. It is hypothesized that altruistic environmental behavior occurs when norms activate three factors: personal values; perceived threat; and belief in ability. A presumption of the theory is that individuals' morality is activated when they are aware of the adverse consequences of specific environmental conditions that threaten values (consequence awareness) (Stern et al. 1999).

The model of environmental citizenship was proposed by Hungerford and Volk (1990), and it follows three stages of participation, ranging from initial exposure (entry) to actual participation (empowerment). It groups the variables that influence whether a person takes action into three categories: general sensitivity and knowledge of the environment; in-depth knowledge and personal commitment; and finally, action skills, sense of control, and intention to act. The model provides a scale for identifying an individual's level on the literacy ladder so that a person can understand where they stand relative to others.

In the process of developing behavioral models, a number of researchers have sought to comprehensively examine behavioral models and variables (Hines et al. 1987; Stern 2000; Kollmuss and Agyeman 2002, etc.)

Two dominant approaches have been used to study environmental behavior, one focused on impact and the other on intention. Intention refers to behaviors that contribute to environmental sustainability and emphasizes the outcome of the behavior. Impact-oriented makes assumptions based on motivations rather than focusing on the outcome of behaviors. The New Ecological Paradigm is considered the "gold standard" for measuring attitudes (Dunlap et al. 2000) and is a widely used and well-validated measure designed to assess an individual's belief system about nature. Stern (2000) adopts an intention-oriented approach to understanding pro-environmental behavior as behavior defined from the actor's perspective with the intention of changing the surrounding environment.

The achievements of various theories of behavior change are the basis of the questionnaire created for the purposes of this study and the empirical research conducted. Despite the many fruitful conclusions and classifications in the available literature, relatively little attention is paid to the relationship between community and institutional policy goals, institutional environment, and individual attitudes and behavior. In this regard, the main goal of this study is to verify the dependence between the presence of environmental self-identification and agreement at the community and institutional level, materialized through specific policies and measures, and the levels of individual environmental perception and behavior. Following this, the data on pro-environmental behavior at the national level were compared with those in the municipality of Gorna Malina, where for over 15 years there has been a sustainable agreement around environmental local goals and active policies and measures of local authorities in accordance with the established local brand – "green municipality".

The „green municipality" specific case

Gorna Malina Municipality is a small municipality close to the capital of Bulgaria, Sofia. The proclamation of an ecological identity in the municipality is already visible with the information entrance sign on the key road I-6 – "Gorna Malina – a green municipality". The incentive for activating environmental policy and making it a priority for the municipality's development is related to a specific case. In 2009, the municipality received an official permit issued by the Ministry of Regional Development and Public Works for the use of public municipal property for "geological exploration works of construction materials". The aim is to give the relevant area to a concession for 40 years. The municipality's authorities are strongly opposed to these actions, do not give their permission, and consider that the issue is closed. At the same time, the installation of four boreholes begins, and the contracting company is seeking locations to accommodate the workers. In 2010, a second company expressed interest in planning a similar activity, next to this one, but this time with permission from the Ministry of Environment and Water. As a result of the local activity of the mayor and the established Initiative committee, the Regulation on Concessions and Concession Contracts was revised, and the right of the Ministries to issue such permits without the consent of the affected municipalities was taken away. However, the case of the stone quarry in the municipality of Gorna Malina remains unchanged. Since the municipality does not receive support from state institutions, it turns to the citizens. An Initiative committee (IC) is formed. Rallies and meetings with representatives from the municipality are held. Several meetings have been held in each of the villages, so that as many people as possible become aware of the problem they are facing. The cause is supported by prominent figures from the municipality and beyond.

Since the ministerial decision was not revoked, a proposal to hold a local referendum was submitted on March 2, 2011, at a meeting of the Municipal Council. The referendum is scheduled for June 25, 2011, with the following question to the voters: "Do you agree with the Municipality of Gorna Malina to grant rights on lands, municipal property, for the exploration and discovery of hazardous waste dumps, mines, and quarries for the extraction of underground resources or polluting industries?

The Initiative committee is extremely active. The law provides for the recognition of a local referendum only on the condition that the number of voters is greater than the number of voters in the last local elections for municipal councilors. Lawyers, scientists, and artists are involved in the information campaign for the "green" cause.

The results of the poll were very categorical: 92% of those who voted said "No" to the stone quarry. Voters on that day were over 74%, or about 20% more than those who voted in the previous local elections. In 2014, the decision became official, and the story of the stone quarry ended. In 2015, a monument in the shape of a tree made of stones was built on the site of the unbuilt stone quarry. The date of the referendum is celebrated annually as a symbol of both democratic participation and the community-based decision for sustainable environmental development.

Community energy in this case leads to the self-identification of Gorna Malina as the "first green municipality in Bulgaria". The request is not just declarative – local authorities devote significant efforts and resources to pro-environmental initiatives – energy efficiency of public buildings, use of renewable energy sources, composting of bio-waste, and bicycle infrastructure. The main emphasis in the municipal schools is green knowledge and green education, which are purposefully integrated into the learning process.

In 2017, a new "conservative" General Development Plan of the Municipality of Gorna Malina was adopted. In this way, all green areas of the municipality are

preserved from construction and industrial activity, and a new protected area under the "Zvezdets" peak has been designated. By decision of the Municipal Council, Gorna Malina is the first municipality to request managing the Natura 2000 zones on its own, covering 40% of the municipal territory.

In 2021, an Integrated Development Plan for the Municipality of Gorna Malina 2021-2027 was adopted. The plan is the main document for strategic planning of sustainable integrated development on the territory of the municipality for the period 2021-2027. It reaffirms the vision for the development of the municipality, according to which it is a "green municipality" with preserved nature and a clean environment, a developed economy and improved infrastructure for development as an attractive place for living, investment and tourism. In recent years, the municipality has been developing steadily - the population is increasing and the number of settled people is greater than the number of displaced people. The "green" self-identification is generally accepted and complemented by visible and targeted activity of local authorities in the person of the mayor and the Municipal Council.

Research methods

The two surveys, the results of which form the basis of this article, were conducted in parallel with the same questionnaire using the face-to-face method. The survey among the adult Bulgarian population was carried out through a nationally representative two-stage nested sample, implemented after preliminary stratification of the universe by administrative region (NUTS-3), settlements, and size of the settlement, a random route of movement within the nest territory, and selection of respondents starting with a starting address plus a step. The fieldwork was conducted from April 4 to April 14, 2024, among 1008 Bulgarian citizens aged 18 and over. The maximum permissible stochastic error is ± 3.1%. The survey in Gorna Malina was conducted among 115 adults from April 6 to April 14, 2024. The maximum permissible stochastic error is ± 9.1%.

Similar to the measurement of environmental perception, there is no scientific consensus on which tool to use to measure pro-environmental behavior. The number of behaviors used to measure pro-environmental behavior varies across studies (from 3 to over 50 different behaviors), leading to wide heterogeneity in the results. Behaviors can be attributed to different behavioral clusters (e.g., water/energy saving, political action, etc.). Going a step further, some studies group behaviors into composite coefficients (Binder and Blankenberg 2017; Schmitt et al. 2018) to capture the respective behavior more adequately. We adopted the same approach - pro-environmental behavior is also measured by a composite indicator created based on respondents' answers to 21 statements that include its main manifestations - preference for seasonal, locally grown food; reading product labels given potential harm to health; striving to reduce waste; participating in environmental campaigns; recycling; energy efficiency efforts; using a car, etc. For this analysis, a composite knowledge indicator was also constructed, which includes the declared level of 2 actions - the purposeful pursuit of self-education about environmental problems; and reading articles and watching programs; and 6 self-declared levels of familiarity with specific categories and groups of practices - the zero-waste concept; green energy sources; environmental standards; eco-labels of appliances; the harms of the production of most goods that are purchased.

Research results

Both Bulgarian citizens in general and the residents of the "green" municipality tend to prefer seasonal, locally produced food, do not buy organic food, are largely not vegetarians, and in the overwhelming majority do not read product labels concerning potential harm to health.

There is a certain difference in the behavior of the representatives of the two studied groups regarding the separate collection of household waste (Figure 1). The distribution of the answers on the Likert scale shows that the residents of Gorna Malina, to a greater extent than the citizens as a whole, declare that they have separate bins for different types of household waste. Nevertheless, among the residents of the "green municipality", the shares of respondents who do not separate their waste at home prevail. This difference is not a consequence of significant differences in access to appropriate infrastructure for separate waste disposal - both Bulgarian citizens and residents of the studied municipality assess their access to bins for separate waste in approximately the same way, and in both groups, those who assess this infrastructure as inconvenient for them prevail.

However, the citizens of Gorna Malina are significantly more active in their participation in eco-initiatives for cleaning and landscaping. The share of those who declare that they always participate in such initiatives is insignificant in both groups – 7.9% among the citizens as a whole and 3.5% among the residents of the studied municipality.

The proportion of respondents from the municipality who turn off the water when brushing their teeth is relatively smaller, but the difference is insignificant. Bulgarian citizens – and this applies to both groups – do not purposefully buy products made from recycled materials. The distribution of answers regarding the statement about owning more than one car is similar – more than half of the respondents state that their household does not have more than one car. Similarly, the majority of respondents from both groups

Table. 1. Perceived importance of environmental problems in both groups

Problem	The population in general	"Green municipality" citizens	The population in general	"Green municipality" citizens
	Rather real/completely real (in %)	Rather real/ completely real (in %)	It rather affects me/it completely affects me (in %)	It rather affects me/ it completely affects me (in %)
Air pollution	27.5/67.3	32.7/49.6	36.4/53.8	29.5/41.1
Water pollution	26.9/67.2	31.5/48.6	36.8/54.8	31.9/39.8
Soil pollution	26,9/65,3	38.5/41.3	36.0/51.9	30.4/40.2
Climate change	29.9/59.9	32.1/53.6	37.5/45.9	43.9/35.1
Extinction of some animal and plant species	30.0/51.8	36.5/40.4	31.9/30.4	28.7/25.0
Natural resources depletion	32.3/48.6	26.7/40.0	33.9/36.4	31.2/27.5
Natural disasters	31.1/58.0	38.6/43.0	40.0/43.7	42.9/26.8
Epidemics	29.5/53.3	29.1/39.1	39.4/44.6	38.2/32.7

declare that it is possible to get around by bicycle in the settlement where they live. The proportion of people who do not use public transport to go to work is high in both groups (respectively, about 46% for Bulgarian citizens as a whole and slightly more than 39% living in the municipality under study).

The composite indicator of pro-environmental behavior, calculated as the average of the distributions for all statements, is practically the same for the two studies.

The vast majority of respondents fall around the average values on the 5-point scale for environmental behavior. In practice, no significant differences are observed in any of the studied manifestations of pro-environmental behavior.

In both groups, the paradox is observed, as the support for environmental policy generally does not transform into personal commitment.

The majority of the surveyed citizens from the local community define pollution and climate change as a real problem. Respondents are highly convinced that environmental issues affect them directly. They define climate change (52%), air pollution (49%), water pollution (47%), followed by natural disasters, soil pollution, the extinction of some animal and plant species as the most significant environmental problems. There is a high level of agreement that people should be stimulated to protect the environment, as well as a need to explain to them why this is important.

Figure 1. Pro-ecological behavior in both groups

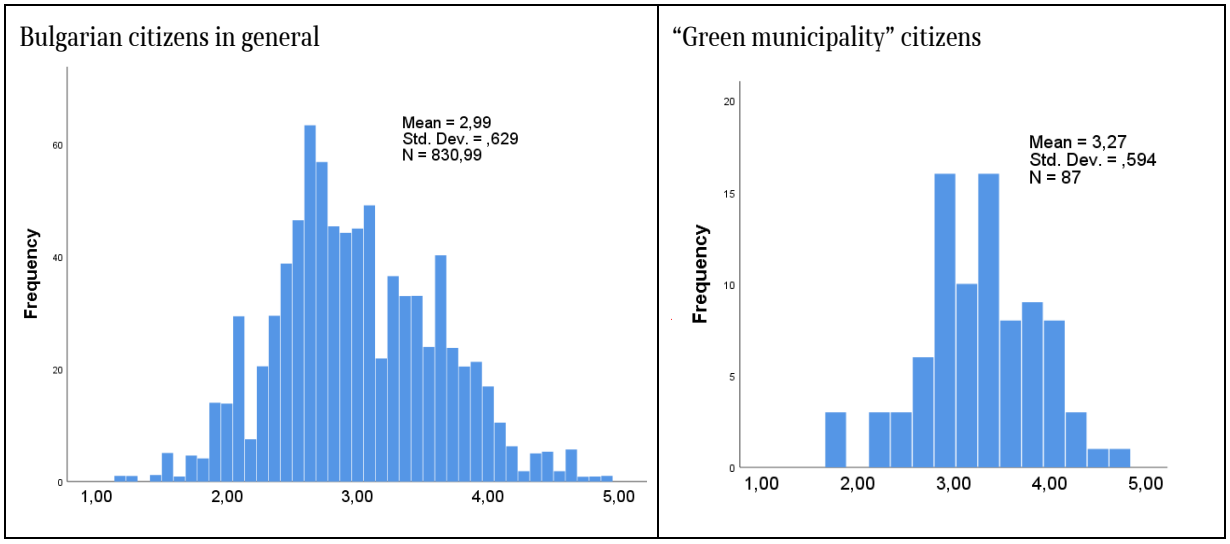

Figure 1. Pro-ecological behavior in both groups

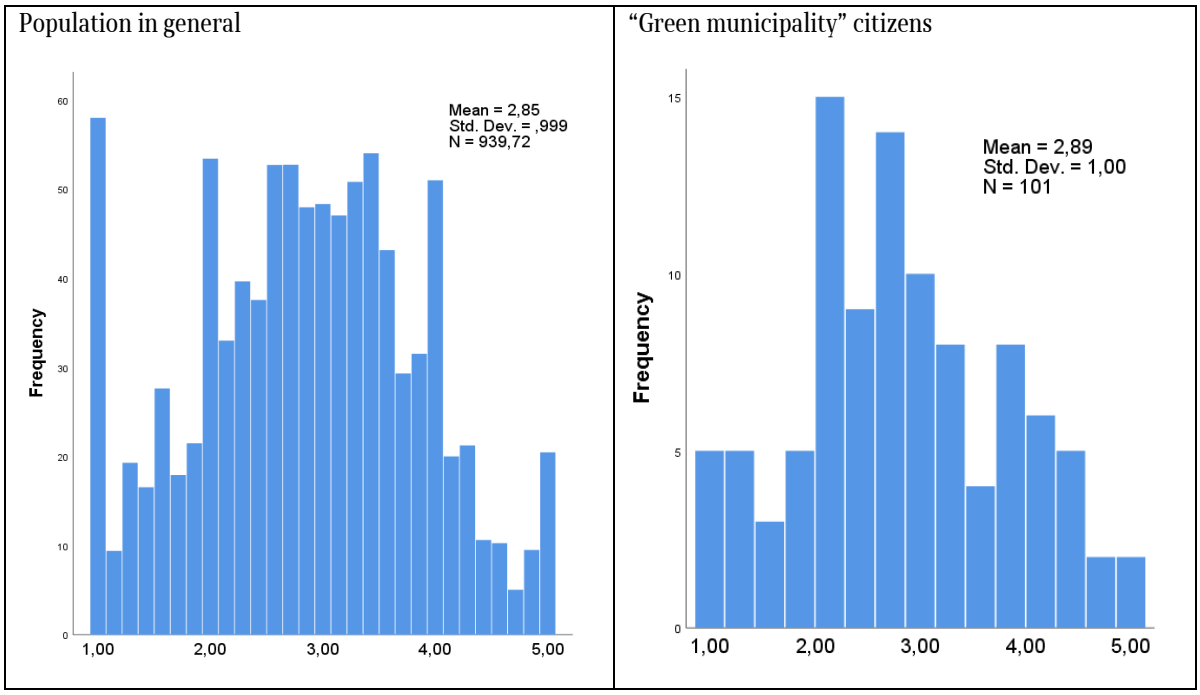

Figure 2. Pro-ecological knowledge in both groups

Knowledge of environmental standards, the concept of zero waste, the harms of the production of certain goods and green energy sources are at a moderate level – about half of the respondents define themselves as completely or more or less familiar. 45% of the respondents claim to read articles or watching programs about environmental problems, and 32% - purposefully strive to educate themselves about environmental problems.

There is a certain discrepancy in the assessment that the two studied groups give to the importance of environmental problems, as well as to their personal concern about these problems (Table 1).

The discrepancy is due to a certain extent to the different stochastic errors in the results for the two groups. However, it should be noted that the population of the "green" municipality is somewhat more moderate in assessing the existence of environmental problems. The difference is especially significant in assessing the realism of epidemics as a public problem. It is likely that this difference is due to the specifics of the population in the "green" municipality, which is older and more settled compared to the population of the country as a whole. In this case, however, it is important that in a municipality in which – at least at the institutional level, ecology is a priority, the population expresses relatively greater reservations regarding environmental problems.

The data shows that the feeling of threat related to ecology is relatively less in the "green municipality" (Table 1). There is a difference concerning all environmental problems included in the questionnaire. It should also be noted that the share of categorical answers "completely concerns me" is significantly lower compared to the data for the population in general.

The level of knowledge about ecology in the two studied groups has significantly different profiles (Figure 2).

Among the adult Bulgarian population, there is a large dispersion in the level of knowledge. There is a high concentration around the moderate level of the composite indicator (at four levels: weak, moderate, strongly expressed, very strongly expressed knowledge about ecology) – 65% of the population in general. This share is comparable to the data for the population of the "green" municipality. At the same time, in the studied municipality there are almost no people with very strongly expressed knowledge about ecology.

Data on the behavior and attitudes of the population of the "green" municipality outlines a rather moderate picture of commitment to environmental issues. Over a fifth of the respondents *tend to* or *completely agree* with the statement that it is not right to emphasize what people do, because environmental protection depends on institutions. This share is lower than the national average (36%). However, the data indicate that personal commitment to environmental protection is not realized. According to a large part of the respondents in the "green municipality", this is more of a commitment of the institutions. 7 out of 10 people share the opinion that the solutions to important issues in the country do not depend on them, and 4 out of 10 - that the individual consumer cannot influence production and pollution. Individualistic thinking also contributes to this - nearly

two-thirds (62%) claim that they prefer to focus on their own problems rather than solving those of the state and the world.

When it comes to economic welfare and development, environmental considerations take a back seat. There is high support for the claim that environmental policy is making life more expensive and people poorer, while over a third (37%) believe that it is causing many businesses to fail and people to lose their jobs. 41% share the view that increasing incomes is more important than environmental impact. According to a third, job creation is more important than environmental development. Only 11% believe that preserving jobs in coal-fired power plants is more important than environmental impact, and 27% believe that building highways and roads is more important.

The majority of respondents did not participate in environmental actions (7 out of 10 people did not participate), 6 out of 10 did not participate in petitions. Only 10% reported to the central and local administration when a violation was detected, 6% participated in public discussions related to environmental measures and policies, and only 3% were members of an environmental organization.

Discussion: robustness of ecological policies

Our research shows that active policies do not necessarily change public attitudes and individual behavior in line with their goals.

The question of the influence of institutional contexts on public attitudes has been raised repeatedly in scientific research, and its answer has been sought through various research methods. However, one conclusion is gaining increasing popularity within the framework of behavioral public policy. According to this conclusion „The institutional contexts are, however, "weak" relative to all the information people receive" (Nair and Howlett 2016). On the other hand, „Institutions are here understood as conventions, norms, and legal rules of a society. They influence attitudes and action by defining what is seen as the "natural" way to act (conventions), the right way to act (norms), and/or the sanctioned form of action (the law)" (Drews and Van den Bergh 2016).

Policy, on the other hand, is the active measures that are the basis of the change. The goal is related to some specific social change. They are a form of social constructivism aimed at changing society and its subsystems, which leads to changes in people and their behavior.

Institutional order is usually perceived as the environment on which the success of policy depends. The question we pose is significantly different. It is about "can policy change the *conventions, norms, and/or the law*, which largely shape the behavior of individuals". The focus is on moral rules, inherited values and stereotypes in individual behavior. And also, "is policy successful that does not change behavior even when formal norms are changed?"

Recently, the topic of policy sustainability has gained increasing attention in academic literature. This fact is a consequence of the changes in modern societies, due to which their manageability is constantly decreasing. In the policy process, due to the time gap between its formulation and the results, new social facts, new stakeholders, or new identifications constantly arise that can interrupt them, which means that the actions taken and the investments made may not cause the desired social change. The research problem of policy sustainability corresponds to the so-called VUCA (volatility, uncertainty, complexity and ambiguity) world (Bennett and Lemoine 2014). These changes complicate policy-making, make predictions difficult if not impossible and suggest a need to be able to design and adopt policy featuring some level of agility and flexibility in its components and processes.

Researchers introduce two policy characteristics, both related to their preservation over time – robustness and resilience. They are often used as synonyms. The first concept is significantly less used, while the second has a series of different definitions. Yet there is a difference between them. A robust policy performs reasonably well across a wide range of plausible future scenarios, even if it is not optimal in any single one. The goal is to ensure that the policy remains effective under different conditions, including unexpected changes. On the other hand, a resilient policy can adapt, recover, or transform in response to shocks, stresses, or changing circumstances. The aim is to maintain or quickly regain functionality after disruption. In this sense, at least according to Howlett et al. (2018), the need for policy resilience appears when it is not robust.

Although the topic of policy resilient is triggered by phenomena such as multiple crises, as well as the acceleration of agenda change, in our opinion it also has its importance in "calm times", when the risks to achieving results can be predicted with great accuracy. Outcomes, outputs, impacts and target behavior are only a few of the many aspects of policy-making which are uncertain (Howlett et al. 2018) in every circumstances.

If we return to our case to assess the policies in the "green" municipality, we cannot deny the achievement of an important change related to the introduction of regulations that guarantee the eco-friendly use of municipal property. At the same time, the state of eco-friendly behavior of citizens in the municipality does not correspond to the measures taken. Due to its insufficient activation, a change in the aforementioned municipal regulations in the direction of eliminating eco-friendly restrictions under favorable political conditions may well pass.

According to Howlett et al. (2018), robustness is „the ability of a system to withstand perturbations in

structure without change in function". This means that even if ecology ceases to be a priority for the municipality, the goals related to environmental protection will continue to be achieved. According to the authors, the design of robust policy, in addition to answering questions related to the policy adaptability, must introduce into the mix of tools, specific procedural measures that incorporate formal policy review and continuous learning into the overall policy process.

In fact, we are not saying anything new, if we do not recognize that of the four types of results - outcomes, outputs, impacts, and target behavior, only pro-environmental individual behavior, which is observed even when no policy provokes it, or stimulates it, or turns it into an obligation, can guarantee environmental protection.

Conclusion

Environmental policy in Bulgaria, even when it is part of the institutional mix of public governance, does not lead to a change in the level of pro-environmental behavior. In our opinion, the reason is that the policy aims to create norms, incentives, and information that do not change individual behavior. The last depends on many other factors - rational or irrational. The problem is further complicated by the strictly individual hierarchy in the influence of various factors.

The general conclusion after processing the data is that despite active environmental policy for about 15 years, the pro-environmental behavior of municipality's residents, proclaimed as "green", does not differ from that of Bulgarian citizens in general. The survey conducted in Gorna Malina did not register categorical differences in attitudes towards environmental behavior and lifestyle in the municipality and in the country as a whole, and the differences in the level of environmental knowledge are also statistically insignificant.

Although the conclusions are made on the basis of data for Bulgaria, in our opinion, they are valid to varying degrees for most democracies. The problem is generic, inherent in the specifics of the policy process which create social changes trough changed behavior of individuals. In many cases before concluding "the policy is wrong" it is better to evaluate its robustness, that means its powerfulness to change individual behavior towards ideal behavioral models that correspond and can achieve the desired goals by themselves. Therefore, the nudge theory is not about policy adaptation. It should be about policy design.

Acknowledgements

This study is financed by the European Union-NextGenerationEU, through the National Recovery and Resilience Plan of the Republic of Bulgaria, project SUMMIT BG-RRP-2.004-0008-C01.

References

Ajzen, I. (2002). Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior. *Journal of Applied Social Psychology*, **32**: 665-683.

Ajzen, I. and Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. 278 pp. Englewood Cliffs, NJ: Prentice-Hall.

Akintunde, E. (2017). Theories and Concepts for Human Behavior in Environmental Preservation. *Journal of Environmental Science and Public Health*, **1**(2): 120-133

Bennett, N. and Lemoine, G. (2014). What a difference a word makes: Understanding threats to performance in a VUCA world. *Business horizons*, **57**(3), 311-317.

Binder, M. and Blankenberg, A. (2017). Green lifestyles and subjective well-being: More about self-image than actual behavior? *Journal of Economic Behavior & Organization*, **137**(C): 304–323.

Blake, J. (1999). Overcoming the 'value–action gap' in environmental policy: tensions be- tween national policy and local experience. *Local Environment*, **4**(3): 257-278.

Carducci, A., Fiore, M., Azara, A. et al. (2021). Pro-Environmental Behaviors: Determinants and Obstacles among Italian University Students. *International Journal of Environmental Research and Public Health*, **18**(6): 1-15.

Drews, S. and Van den Bergh, J. (2015). What explains public support for climate policies? A review of empirical and experimental studies. *Climate Policy*, **16**(7): 855–876.

Dunlap R., Van Liere K., Mertig A. and Jones R. (2000). New trends in measuring environmen- tal attitudes: measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Social Issues*, **56**(3): 425-442

Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention and Behaviour: an introduction to theory and research*. 578 pp. Addison-Wesley, Reading, MA, US.

Gaspar de Carvalho, R., Palma-Oliveira, J.M. and Corral-Verdugo, V. (2010) Why do people fail to act? Situational barriers and constraints on ecological behavior. In V. Corral-Verdugo, C. García-Cadena, and M. Frías-Armenta (Eds.), *Psychological Approaches to Sustainability: Current Trends in Research, Theory and Practice*, 269-294.

Hammond, A., Adriaanse, A., Rodenburg, E., Bryant, D. and Woodward, R. (1995). *Environmental Indicators: A Systematic Approach to Measuring and Reporting on Environmental Policy Performance in the Context of Sustainable Development*. 58 pp. World Resources Institute, Washington DC.

Hanna, G. (1995). Wilderness-related environmental outcomes of adventure and ecology education programming. *The Journal of Environmental Education*, **27**(1): 21-32.

Hines, J., Hungerford, H. and Tomera, A. (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *The Journal of Environmental Education*, **18**(2): 1–8.

Howlett, M., Capano, G. and Ramesh, M. (2018). Designing for robustness: Surprise, agility and improvisation in policy design. Policy and Society, **37**(4): 405-421.

Hungerford, H. and Volk, T. (1990). Changing learner behavior through environmental education. *Journal of Environmental Education*, **21**(3): 8-21.

Kollmuss, A. and Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, **8**(3): 239-260.

Michie, S., Johnston, M., Francis, J., Hardeman, W. and Eccles, M. (2008). From theory to intervention: Mapping theoretically derived behavioural determinants to behaviour change techniques. *Applied Psychology*, **57**(4): 660–680.

Nair, S. and Howlett, M. (2016). From robustness to resilience: avoiding policy traps in the long term. *Sustainability science*, **11**(6): 909-917.

Pirmoradi, A., Rostami, F. and Papzan, A. (2021). A Critical Review of Sustainable Pro-Environmental Behavior Theories. *International Journal of Agricultural Management and Development*, **11**(1): 117-135.

Schifter, D. and Ajzen I. (1985). Intention, perceived control, and weight loss: An application of the theory of planned behavior. *Journal of Personality and Social Psychology*, **49**: 843-851.

Schmitt, M., Aknin, L., Axsen, J. and Shwom, R. (2018). Unpacking the relationships between pro-environmental behavior, life satisfaction, and perceived ecological threat. *Ecological Economics*, **143**: 130–140.

Shalom, S. (1977). Normative explanations of helping behavior: a critique, proposal, and empirical test. *Journal of Experimental Social Psychology*, **9**: 349-364.

Stern, P. (2000). New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behaviour. *Journal of Social Issues*, **56**(3): 407-424.

Stern, P., Dietz, T., Abel, T., Guagnano, G. and Kalof, G. (1999). A Value-Belief Norm Theory of Support for Social Movements: the case of environmental concern. *Human Ecology Review*, **6**: 81-97.

Triandis, H. (1977). *Interpersonal Behaviour*. 311 pp. Monterey, CA: Brooks/Cole, US.