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# Social Campaigns for Protecting Natural Resources: The Case of Poland

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***Abstract:***

***Purpose:*** *The main goal of the research is to identify the role of social campaigns in the protection of natural resources, to relate their subject matter to the Sustainable Development Goals (SGDs) of the 2030 Agenda, and to discuss their potential effectiveness.*
***Design/Methodology/Approach:*** *The article focuses on the quality analysis of environmental campaigns that have been organized in Poland over the last 25 years. In total, 341 descriptions (of 1698 contained in the base) were analyzed, from which only those social campaigns were selected that met the following criteria: organized by governmental and non-profit organizations; using various media to convey information; addressed to recipients at least at the regional level; covering a set of various activities; making people aware of the problem of using natural resources and promoting attitudes contributing directly or indirectly to their protection.*
***Findings:*** *The research proved that ecology and the environment are still rare campaign topics. However, the literature on the subject shows that environmental campaigns can largely translate into the desired change in social attitudes and thus contribute to slowing down the process of depletion of natural resources and favor the implementation of SDGs.*
***Practical Implications:*** *The results of the research indicated the need to develop a framework that could be used for evaluation of social campaigns impact on realization level of SDGs.*
***Originality/Value:*** *The conducted research contributed to the narrowing of the research gap concerning the identification of the role of social campaigns in the implementation of SDGs.*

***Keywords:*** *Natural resources, social campaign, Sustainable Development Goals, effectiveness.*

***JEL codes:*** *P48, Q2, Q3.*

***Paper type:*** *Research article.*

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## 1. Introduction

Natural resources are a specific economic category and, together with national assets, are part of national wealth. Therefore, they are not only the condition but also an important factor of socio-economic development. Progressive exploitation of resources and subsequent environmental degradation depletes national wealth and may prove to be an ecological barrier to further development (Górka, 2012; Kattumuri, 2018; Patnaik, 2018). Therefore, in recent years, these adverse phenomena contributing to the occurrence of a serious ecological crisis have become the focus of attention of both governments and many international organizations (European Environment Agency, 2019; UNEP, 2015; World Economic Forum, 2021; World Wide Fund for Nature, 2020). It has been realized that the prevention of ecological crisis requires comprehensive measures, the most important of them being to increase ecological awareness (European Environment Agency, 2019), i.e., to keep people informed about the great importance of their pro-environmental attitude for the state of the environment (Omoogun *et al.*, 2016).

The high level of environmental awareness is achieved through the implementation of measures for the sake of broadly understood environmental education (Paśko, 2011), where social campaigns play an important role (Fernandez *et al.*, 2017; Maibach, 1993; Nycz-Wróbel, 2012). A social campaign is a type of social communication aiming at promoting socially appropriate and valuable behavior patterns, attitudes and values or to draw public attention to vital but often difficult and unsolved problems (Kicińska, 2012). One of the basic goals of ecological campaigns is to make the public realize the importance of the problem of natural resource depletion, environmental devastation, as well as to encourage environmentally-friendly behavior and, as a consequence, to inspire a sense of responsibility for the condition of natural environment and to overcome indifference and recklessness.

The main objective of this paper is to identify the role of social campaigns in the conservation of environmental resources (covering elements such as mineral and energy resources, soil, water, biological resources and air (Arocena and Driscoll, 2002; Bartkowski, 1981; Dickens *et al.*, 2020; Górka, 2012; OECD, 1997)), relate their themes to the Sustainable Development Goals of the 2030 Agenda for Sustainable Development (SDGs), and discuss their potential effectiveness.

## 2. Materials and Methods

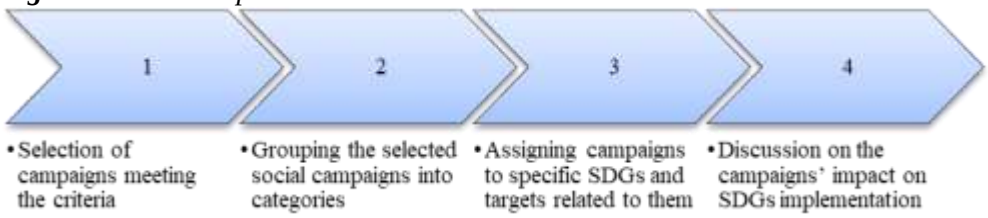
This article focuses on the analysis of environmental campaigns that have been organized over the past 25 years in Poland. Information on the analyzed social campaigns was provided by Kampaniespoleczne.pl webs portal run by the Social Communication Foundation (Fundacja Komunikacji Społecznej), a non-governmental organization established in 1999 to promote and develop social advertising and social marketing in Poland. The portal is the largest Polish database

about social campaigns and other events and actions realizing important social goals, grouped into 26 thematic categories. One of them is the "ecology and environment" category, where information on pro-environmental campaigns, actions and events organized in Poland over the past 25 years (from 1997 to the end of August 2021) has been examined. A total of 341 descriptions were analyzed (out of 1698 included in the database as of 30 August 2021). Out of this number only those social campaigns that meet the following criteria were selected:.

- organized by non-profit governmental and non-governmental organizations,
- using several different media simultaneously to convey information about a particular environmental problem,
- aimed at an audience at least at national level,
- designed as a set of different activities planned at a specific time and raising awareness of the process of environmental resources depletion and promoting attitudes that contribute directly or indirectly to conservation of these resources.

In the next step of the research procedure, we focused on grouping the selected social campaigns into categories corresponding to the most frequently mentioned in the literature areas of activities that can contribute to the protection of natural resources (Figure 1).

***Figure 1.*** *Research procedure*




***Source:*** *Own elaboration*

Next, the social campaigns grouped into categories were analyzed by assigning them to specific Sustainable Development Goals (SDGs) and related 169 targets.

In the last step, a discussion was carried out on the potential impact of environmental campaigns on the achievement of SDGs and the conservation of natural resources basing on the results of studies on the effectiveness of selected social campaigns presented in the literature.

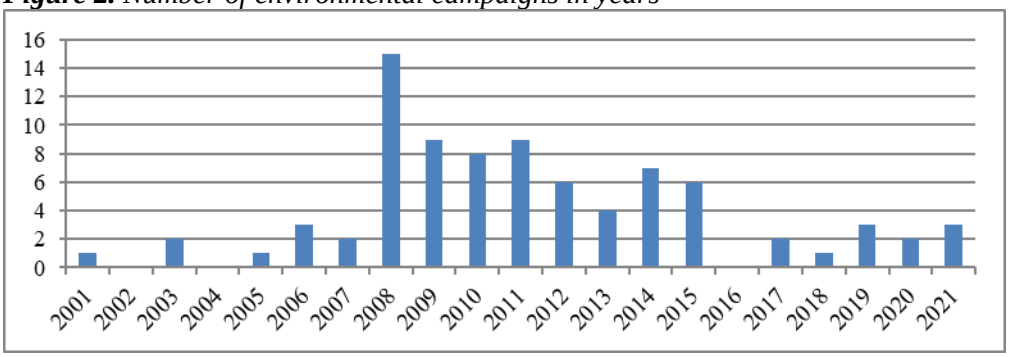
## 3. Results

### 3.1 Analysis of Selected Social Campaigns

According to the criteria mentioned above, 84 social campaigns were selected. These campaigns were carried out in the years 2001-2021 (in 1997-2000 no campaign

meeting the criteria was organized). As can be seen in Figure 2, most of them took place between 2008 and 2015 (a total of 64, i.e., 76.2% of the number of all the selected campaigns).

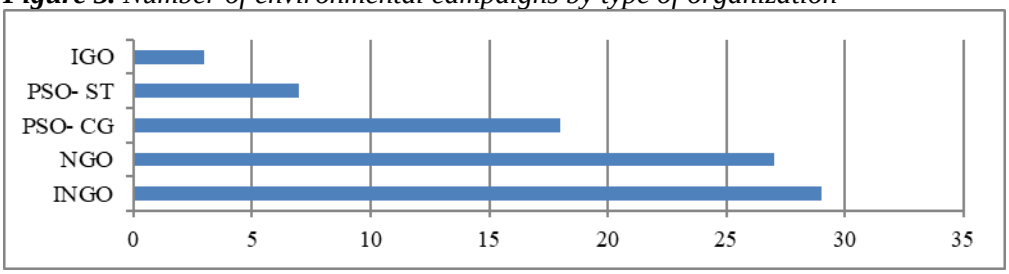
***Figure 2.*** *Number of environmental campaigns in years*




***Source:*** *Own elaboration.*

Campaign broadcasters were specific organizations called non-profit entities. Non-profit organizations can be divided into two basic groups: public and non-governmental (Hernik, 2013). They can operate on international as well as national level. The graph in Figure 3 presents the number of campaigns organized by each type of organization. The typology of organizations is taken from (Meyer and Leixnering, 2015; Raju, 2009). The abbreviations used in the figure mean: IGO – Intergovernmental Organization; PSO- CG - Public Sector Organization (Core Government); PSO- ST - Public Sector Organization (State Businesses); INGO – International Non-Governmental Organization; NGO – Non-Governmental Organization.

***Figure 3.*** *Number of environmental campaigns by type of organization*




***Source:*** *Own elaboration.*

The majority of campaigns (67%) were implemented by NGOs, with a similar proportion of international (30 campaigns) and national organizations (27 campaigns). Out of 84 campaigns, 53 (63.1%) were organized by only 4 organizations: World Wide Fund for Nature Poland (20 in 2003-2020), Ministry of Environment (17 in 2008-2015), Our Earth Foundation (9 in 2007-2011) and Greenpeace (7 in 2006-

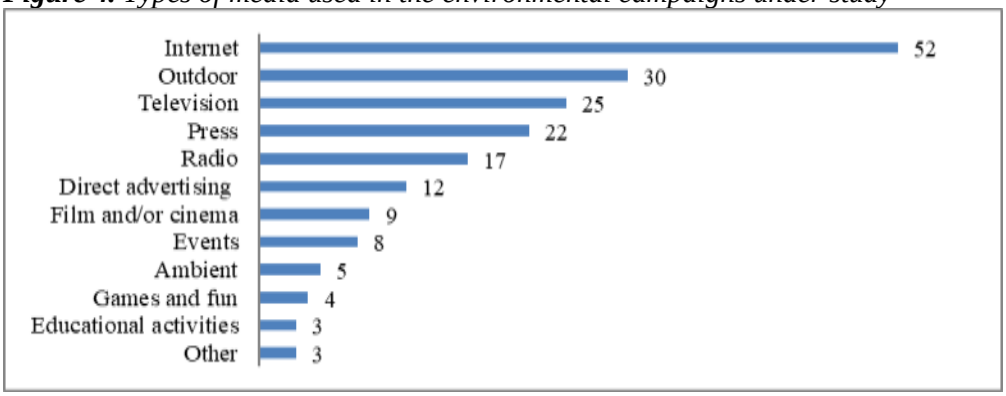
2013). The remaining enti-ties implemented between 1 and 3 environmental campaigns over the years under sur-vey.

Social campaigns were conducted using different types of media and included a variety of activities. It should be noted here that social campaigns use the same media as commercial advertising campaigns (Herbuś, 2016; Katz, 2019; Sissors and Baron, 2010). These media are classified differently in the literature (Adzharuddin, 2013; Katz, 2019; Sissors and Baron, 2010). A common typology is traditional media, nontraditional media, and new media. In terms of advertising, any medium that was developed prior the Internet is considered a traditional medium (Kelley and Jugenheimer, 2008, p. 11). That includes print (e.g., newspapers, magazines), audio (radio and recordings), video media (television and movies) (Biagi, 2017, p. 239) but also direct (e.g., direct mail, postcards, folders, booklets, brochures) and outdoor advertising (e.g., banners, posters, billboards) (Korenkova *et al.*, 2020).

The Internet was the most frequently used medium in the implementation of se-lected social campaigns. Approximately 27% of campaigns employed this communica-tion channel. Outdoor advertising was applied in 16% of the campaigns. Traditional media such as television, press and radio were used in respectively, 13%, 12% and 9% of campaigns. It should be noted that in many cases campaigns were conducted through several forms of advertising.

The analysis of media and activities undertaken in the campaigns, revealed that 61% of them took advantage of traditional channels. Other forms, excluding the Internet (e.g., educational activities, games, and fun, ambient or various events) constitute about 12%, with the largest group being special events (like happenings, photo exhibitions etc.). Figure 4 shows the types of media used in the campaigns under study, specifying the number of them using a given medium.

***Figure 4.*** *Types of media used in the environmental campaigns under study*




***Source:*** *Own elaboration.*

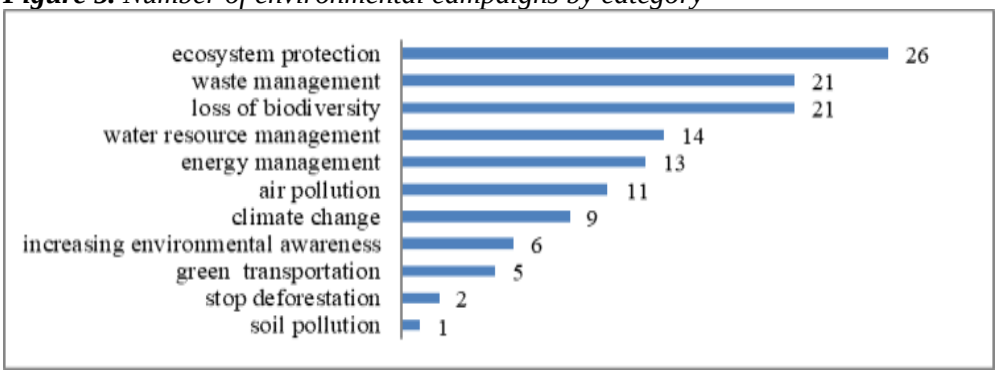
The selected campaigns addressed a variety of environmental problems. It was quite challenging to group them into categories according to the areas of activities most frequently mentioned in the literature that can contribute to the protection of natural resources.

There is a very rich literature on the areas in which the key environmental challenges facing the world in the near future are identified. Those most frequently mentioned (Albert *et al.*, 2021; Dickens *et al.*, 2020; Kassenberg, 2012; Maibach, 1993; Prandecki and Sadowski, 2010; Rockström *et al.*, 2009; Steffen *et al.*, 2015; Vörösmarty *et al.*, 2010; World Economic Forum, 2019; World Wide Fund for Nature, 2020) are (in random order), air pollution, climate change, waste management, loss of biodiversity, ecosystems protection, deforestation, water resources management and energy management. Beside these key areas, other issues such as green transport (due to its impact on air pollution} and energy management are considered important for preventing environmental devastation (Mosaberpanah and Khales, 2012).

An analysis of the campaign messages made it possible to assign each campaign to one (or several) of the above areas. For example, the campaign organized in 2008 by the Polish Ministry of the Environment under the title 'Change your habits for good, change the climate for better' promoted socially appropriate attitudes in five of the listed areas (i.e.: waste management, energy management, water resource management, climate change and green transport).

In addition to the ten key areas, identified on the basis of the literature, which address the most pressing environmental issues, an additional category was identified after analysing the messages of the selected campaigns, namely, raising environmental awareness. Six of the examined campaigns (5%) focused on activities aimed primarily at arousing a sense of responsibility among the public for the state of the environment and reducing public indifference and recklessness in this regard (Figure 5).

***Figure 5.*** *Number of environmental campaigns by category*




***Source:*** *Own elaboration.*

The greatest number of campaigns dealt with ecosystems protection (20%, of which almost 1/3 was organized by the World Wide Fund for Nature Poland), waste manage-ment (16%, of which more than half was held by two organizations - the Ministry of the Environment and Our Earth Foundation) and loss of biodiversity (16%, of which more than half was organized by the World Wide Fund for Nature Poland). Water resource management topic was taken up by fourteen campaigns (11%). Most of them were held by Our Earth Foundation and Ministry of Environment.

Energy management issues were present in 13 campaigns (10%). The major sender was the Ministry of Environment. Ten campaigns referred to air pollution (8%). The most interesting action undertaken as part of these campaigns included a lung model in the campaign "See what you are breathing. Change it". Nine campaigns were about climate change (7%). Majority of these campaigns were realized in 2008 and 2009. It is worth noting that since 2015 no major campaign was launched. Six campaigns addressed the subject of environmental awareness. Five campaigns dealt with green transport. Only two campaigns called for stopping deforestation (2%). The most notable example is the "Swiadomi zagrożenia" (Aware of the Danger) campaign. This campaign was particularly successful, which will be discussed further in the paper. There was also one campaign (1%) loosely related to soil pollution (its major topic was food waste).

### 3.2 Campaign Themes and the SDGs

The Sustainable Development Goals (SDGs), a collection of 17 goals and 169 targets to be achieved by 2030, form the core of the Post-2015 Development Agenda (United Nations General Assembly, 2015). This set is accompanied by a list of unique indicators.

A study by Bringezu *et al.* (2016) shows that the implementation of all SDGs, except for the 17th, is more or less related to the use or protection of natural resources. In contrast, another study (Dickens *et al.,* 2020) indicates that only 16% of all SDGs unique indicators relate to natural resources, which is the sum of 7.8% indicators monitoring natural resources directly and 8.2% monitoring conditions for natural resource protection but do not directly quantify them. These indicators relate to the goals 2, 6, 11, 12, 13, 14, and 15.

The analysis of the above campaigns has shown that SDGs 2, 3, 6, 7, 11, 12, 13, 14, and 15 are relevant in the context of the campaigns themes. A high degree of convergence with the indications in (Dickens *et al.,* 2020) can be found. Additionally, the goals 3 (Ensure healthy lives and promote well-being for all at all ages) and 7 (Ensure access to affordable, reliable, sustainable and modern energy for all) can also be regarded as relevant, as their achievement is highly dependent on solving some of the identified environmental problems - as shown in Table 1.

***Table 1.*** *Topics of ecological campaigns and Sustainability Development Goals and targets*

| | | Goals and targets description | air pollution | climate change | ecosystems protection | energy management | green transport recycling | environmental awareness | loss of biodiversity | soil pollution | stop deforestation | water resources management | waste management |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture** | | | | | | | | | | | | | |
| 1 | 2.4 | ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality | | | | | | | | x | | | |
| **Goal 3. Ensure healthy lives and promote well-being for all at all ages** | | | | | | | | | | | | | |
| 2 | 3.9 | reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination | x | x | | | x | x | | | | x | x |
| **Goal 6. Ensure availability and sustainable management of water and sanitation for all** | | | | | | | | | | | | | |
| 3 | 6.3 | improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally | | | | | | | | | | x | x |
| 4 | 6.4 | increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity | | | | | | | | | | x | |
| 5 | 6.5 | implement integrated water resources management at all levels, including through transboundary cooperation as appropriate | | | | | | | | | | x | |
| 6 | 6.6 | protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes | | | x | | | | | | | x | |
| 7 | 6.b | Support and strengthen the participation of local communities in improving water and sanitation management | | | | | | | | | | x | |
| **Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all** | | | | | | | | | | | | | |
| 8 | 7.2 | increase substantially the share of renewable energy in the global energy mix | | | | x | x | x | | | | | |
| **Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable** | | | | | | | | | | | | | |
| 9 | 11.4 | strengthen efforts to protect and safeguard the world's cultural and natural heritage | x | x | x | x | x | x | x | x | x | x | x |
| **Goal 12. Ensure sustainable consumption and production patterns** | | | | | | | | | | | | | |
| 10 | 12.2 | achieve the sustainable management and efficient use of natural resources | x | | x | x | x | x | x | x | x | x | x |
| 11 | 12.4 | achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment | | | | | | | | | | | x |
| 12 | 12.5 | substantially reduce waste generation through prevention, reduction, recycling and reuse | | | | | | | | | | | x |
| 13 | 12.8 | ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature | x | | x | | | x | | | | | x |

| | | Goals and targets description | air pollution | climate change | ecosystems protection | energy management | green transport | increasing environmental awareness | loss of biodiversity | soil pollution | stop deforestation | water resources management | waste management |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Goal 13. Take urgent action to combat climate change and its impacts** | | | | | | | | | | | | | |
| 14 | 13.3 | improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning | | x | | | | x | | | | | |
| **Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development** | | | | | | | | | | | | | |
| 15 | 14.1 | prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution | | | | | | | | | | x | x |
| 16 | 14.2 | sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans | | | x | | | | | | | x | x |
| **Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss** | | | | | | | | | | | | | |
| 17 | 15.1 | ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements | | | x | | | | | | | | |
| 18 | 15.2 | promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally | | | x | | | | | | x | | |
| 19 | 15.4 | ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development | | | x | | | | x | | | | |
| 20 | 15.5 | take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and protect and prevent the extinction of threatened species | | | x | | | | x | | | | |
| 21 | 15.7 | take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products | | | x | | | | x | | | | |
| 22 | 15.8 | introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species | | | x | | | | | | | | |
| 23 | 15.c | enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities | | | x | | | | x | | | | |

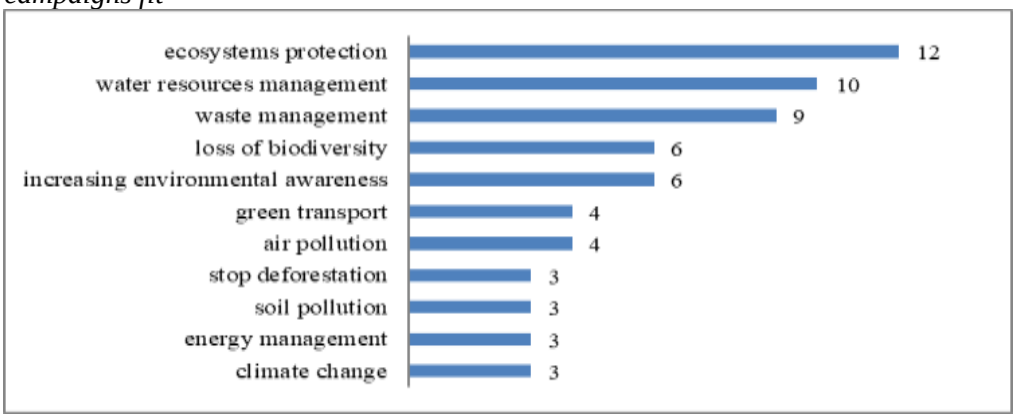
***Source:*** *Own elaboration.*

Selected campaigns fit in 23 targets of SDGs. Many of them directly address identified environmental problems, e.g., the target 12.2 (reducing waste), 13.3 (climate change) or 15.1 (ecosystems protection), while others relate indirectly to these issues. For example, the implementation of the target 3.9 (reduce the number

of deaths and illnesses) and 11.4 (strengthen efforts to protect and safeguard the world's cultural and natural heritage) depends on the effectiveness of all the actions, not only the ones targeted at reducing environmental devastation.

Three subjects seem to be most relevant in the context of SDGs targets (Figure 6), ecosystem protection (within goals 6, 11, 12, 14, and 15), water resource management (within goals 3, 6, 11, 12, and 14) and waste management (3, 6, 11, 12, and 14).

***Figure 6.*** *Number of targets of SDGs in which categories of selected social campaigns fit*




***Source:*** *Own elaboration.*

It should be highlighted that the implementation of some of the indicated targets requires integrated actions inscribed in various areas of ecological threats. For example, the achievement of the targets 11.4 (strengthen efforts to protect and safeguard the world's cultural and natural heritage) and 12.2 (achieve the sustainable management and efficient use of natural resources) is undoubtedly facilitated by the initiatives inscribed in all or nearly all the identified thematic areas of the environmental campaigns.

## 4. Disscusion on the Effectiveness of the Social Campaigns

The research confirms the assumption that social campaigns can support SDGs, but a question arises: to what extent are they effective?

In most cases the effectiveness evaluation of most campaigns is not performed appropriately. This is due to the complexity of campaign evaluation process. Generally, evaluation can be categorized into four basic types. The first type – formative evaluation – represents front-end evaluation; the last three types, i.e., process, outcome, and impact evaluation, represent back-end evaluation (Coffman, 2002).

Formative evaluation, prior to or in the early stages of a campaign, guides the development of campaign materials and techniques that would appeal to the target audience (Berkowitz *et al.*, 2008).

The process evaluation stage begins when the campaign officially launches. During this stage, evaluators assess the campaign's implementation while the campaign is actively running (Bruce and Tiger, 2011). This type of evaluation involves tracking things like materials distribution or amount of media time bought or earned, and how many people the campaign reached (Coffman, 2002). Outcome evaluation measures the campaign's short-term effects, which include awareness of the campaign message, knowledge and understanding about the topic, belief and attitude change, changed norms, enhanced self-efficacy, changes in behavioral intentions, changes in behaviors, changes in skills, and reductions in environmental constraints (Rudi *et al.*, 2015). The final type – impact evaluation is the most resource-intensive in terms of design and implementation. It uses rigorous research designs, usually experimental or quasi-experimental, and determines whether the campaign affected the outcomes measured (Coffman, 2002).

For all types of evaluation there are specific methods that enable campaign's assessment. Examples of such methods for every evaluation type are presented in Table 2.

***Table 2.*** *Methods of social campaign's effectiveness evaluation*

| **Formative evaluation** | **Process evaluation** | **Outcome evaluation** | **Impact evaluation** |
|---|---|---|---|
| In-depth-interviews | Newspaper tracking | Surveys/polling of target audience(s) | Repeated measures |
| Dyadic interviews | Television tracking | Direct response tracking | Staged implementation |
| Focus groups | Radio tracking | Framing analysis | Natural variations in treatment |
| Ethnography | Website monitoring | Rolling sample surveys | Self-determination of exposure |
| Big data analysis | Ad assessments | - | - |
| Self-report questionnaires | Case studies | - | - |
| Eye-tracking | Clipping services | - | - |
| Brain wave monitoring | Small-scale surveys | - | - |

***Source:*** *Own elaboration based on Berkowitz et al., 2008; Coffman, 2002; Gordon and Ciorciari, 2017; Rudi et al., 2015.*

The campaign evaluation process should be documented in the form of a report. Unfortunately, it is not easy to find reports that would show how successful the campaign was in achieving its goals and changing people's attitudes and behavior.

Even if such research is done, its results are not published and available to the public.

In our study we have managed to find only four reports concerning the effectiveness of the campaigns under study. Their results are outlined in Table 3.

***Table 3.*** *Polish case studies concerning the research of social campaigns effectiveness*

| **Campaign's name** | **Goal(s)** | **Effectiveness evaluation methods** | **Results** |
|---|---|---|---|
| Świadomi zagrożenia (Aware of the Danger) (Tomusiak, 2012) | Halting deforestation | Post-campaign survey (CATI, Computer Assisted Telephone Interview) | The research results clearly indicate that the campaign was noticed, because over 1/3 of respondents heard about it or had contact with it.<br>Among the many different forms of communication, the most attractive ones turned out to be the most common ones, i.e. TV advertising, leaflets, brochures and posters. |
| Sprzątanie świata (Clean Up the World) (Fundacja Nasza Ziemia, 2020) | Counteracting forest littering and protection of ecosystems | Media tracking, direct response tracking | The campaign was broadly covered in the national media. Publications on portals prevailed, although there were also many posts on social media. In total, the information reached a range of almost 30 million people. In the campaign 13,513 waste bags were collected by 94,508 people. |
| Zaadoptuj rzekę (Adopt a River) (Klub Gaja, 2011) | Protection of ecosystems and biodiversity | Direct response tracking | More than 290 rivers, streams, currents, ponds and lakes were cared for as part of the project. Over 40,000 participants took part in the program |
| Europejski tydzień zrówno-ważonego tran-sportu (European Mobility Week) (Ministerstwo Infrastruktury, 2019) | Promotion of environmentally friendly means of transport | Direct response tracking | In the campaign 202 cities, municipalities and counties took part. |

***Source:*** *Own elaboration.*

The message of the first campaign, Aware of the Danger, was to stop deforestation. People were interviewed (using CATI method) after the campaign ended and 1/3 of re-spondents had heard about the campaign. However, this shows us only the effect on the awareness level. The research concerning the impact of the campaign on forests them-selves and on behavior change was not conducted. Therefore, there is no strong evidence that that campaign could contribute to achieving the SD targets 12.2 and 15.2. More in-depth research would be recommended.

The campaign Clean Up the World had a very wide reach. Its measurable success was to collect a large amount of waste. So people were not only aware of the campaign but they have actively participated in its actions. There is still a lot of waste that re-mained, but even such a relatively little effect can influence the achievement of some SDGs referring to waste management (reducing the land and water pollution).

The Adopt a River campaign was based on raising greater interest in a selected river through its constant observation, trips, searching for stories related to it, ongoing monitoring of the cleanliness of the areas around it and detailed knowledge of the fauna and flora of a given river valley. Thanks to the campaign, public attention was drawn to the condition of the river banks and the river itself was subject to greater supervision and attention. That contributed to achieving the SD targets that relate to water resource management, especially in the scope of the 6th SDG: Ensure availability and sustainable management of water and sanitation for all.

Action of European Mobility Week encouraged people to choose active ways of getting around or to combine walking and cycling with public transport. The number of places where action took place is impressive (Poland was ranked 4th in Europe in 2019 (Ministerstwo Infrastruktury, 2019)) but the report does provide information about how people's awareness, attitudes and behaviors have changed. Based on this particular effectiveness report it cannot be told if any of the SD targets is closer its completion.

It is difficult to generalize on the basis of only four reports, but when trying to assess the role of the campaign in protecting natural resources and implementing SD targets, one can also reach for the available reports on the effectiveness of campaigns on similar topics organized in other countries. There are examples concerning loss of biodiversity, water resource management, energy management and waste management. Those campaigns were evaluated by means of surveys (pre-, mid- and post-campaign) and interviews, but it is worth noting that more advanced methods were also used, like monitoring the changes in the environment (Table 4). On the basis of such reports, the campaign impact on the SDG realization can be evaluated in a more reliable way.

***Table 4.*** *International case studies concerning the research of social campaigns effectiveness*

| Campaign name | Goal(s) | Effectiveness evaluation methods |
|---|---|---|
| CROC (Crocodile Rehabilitation, Observance, and Conservation) (van der Ploeg et al., 2011) | mobilize broad public support for the conservation of the Philippine crocodile in the wild | post-campaign survey (with control group not exposed to the campaign), field observations (monitoring the crocodile population) |
| The Clean Water Campaign (O'Brien, 2005) | raise awareness of storm water pollution | pre- and post-campaign surveys |

| Campaign name | Goal(s) | Effectiveness evaluation methods |
|---|---|---|
| | provide solutions to prevent water pollution | |
| Chesapeake Club (Landers et al., 2006) | change personal behavior patterns that impact Bay water quality<br>heighten awareness of Bay pollution among the audience<br>reduce the fertilizing of lawns in order to protect the crabs population in the Bay | pre-campaign telephone survey, focus groups, post-intervention telephone survey |
| The Campaign to Protect the Sichuan Golden Snub-nosed Monkey (DeWan et al., 2013) | inspire communities to protect forest habitat in the reserve | pre- and post-campaign surveys, monitoring fuelwood consumption, monitoring forest destruction |
| Don't Palm Us Off (Pearson et al., 2014) | raise public awareness about what palm oil is, the many products it is contained in, and the impact on rainforests and orangutans | pre-, mid- and post-campaign survey |
| Ambon Bay beach litter clean-up (Uneputty et al., 1998) | decrease of litter on beaches after beach cleaning event | count of litter before, immediately following, and 6 months after the beach clean-up event, interviews |
| Give Swordfish a Break (Brownstein et al., 2003) | convince key seafood gatekeepers and seafood eating public to take a stop serving, selling, or eating swordfish to pressure the government into adopting more sustainable swordfish fishery laws | monitoring swordfish populations in the North Atlantic |
| Manatee Watch (Morris et al., 2007) | increase boater knowledge of manatees, increase attitudinal support for manatee protection, increase conservation intentions | post-campaign evaluation of intervention participants compared to socioeconomically equivalent control group of boaters. |
| Save the Hainan Gibbon (Qian et al., 2021) | improve conservation knowledge about the critically endangered Hainan gibbon | post-campaign interviews |
| DEFRA water saving campaign (Appelboom, 2009) | educate citizens that water is a valuable resource that needs to be conserved,<br>encourage consumers to change their behavior and adopt water saving measures | pre- and post-campaign survey |
| Macau Energy Conservation Week (Song et al., 2017) | encourage both residents and enterprises to learn to read and interpret energy labels and to practice energy conservation in their daily lives | post-campaign survey |

| Campaign name | Goal(s) | Effectiveness evaluation methods |
|---|---|---|
| Don't let the winter 'fool' you; there is a still a water shortage—please conserve (Heiman, 2002) | educating and encouraging water conservation | post-campaign survey |

***Source:*** *Own elaboration.*

The analysis of results concerning the effectiveness evaluation shows that in all the cases where surveys and interviews were conducted, social campaigns have increased awareness and knowledge about the advertised issues. In some instances, respondents also declared the change in behavior. In case of Don't Palm Us Off campaign which main goal was to inform the public about the environmental costs of obtaining palm oil and its impact on rainforests and orangutans, the creators of this campaign were able to obtain quite significant outcomes. The percentage of visitors responded they would be willing to change their behaviour to support orangutan conservation grew from 60.9% to 84.3%. What is more, only 18.7% of visitors reported avoiding palm oil products at baseline, compared with 38.9% 6 months after campaign. Visitor perceptions that friends and family felt orangutan conservation to be highly important also increased from 28% at baseline to 54% at the end of the campaign.

Effectiveness research using surveys has also shown that thanks to another campaign: The Clean Water that aimed to raise awareness of storm water pollution and provide solutions to prevent it. The post-campaign survey has shown that the number of people who identified storm water runoff as the main source of water pollution over factories/industrial discharges and over landfills grew from 9.5% to 21.5% between 2001 and 2004 and the number of people who heard about the Clean Water Campaign grew from 49%to 71%.

When it comes to the effectiveness similar effects can be observed regarding Chesapeake Club campaign. Messaging of this campaign was focused on waiting until fall to fertilize the lawns and would emphasize creating a healthy lawn, as opposed to a green lawn. The effectiveness research has shown that of the people surveyed, 72% were able to recall a major theme of the campaign; 37% were able to recall specifically the Chesapeake Club brand, and/or main message of the campaign. Moreover, in the 2004 pre-campaign survey, 23% of respondents reported that they were not planning to fertilize their lawn at all that year, while 28% of those in the 2005 post-campaign survey reported that they were not planning to fertilize their lawn.

Another interesting example is The Campaign to Protect the Sichuan Golden Snub-nosed Monkey. The results of this campaign's effectiveness study have shown a significant increase in knowledge, attitudes, and interpersonal communication pre- and post-campaign (16 - 49 percentage points). In similar campaign concerning the

preserving the Hainan Gibbon, in post-campaign interviews, respondents have reported knowing about gibbon presence mainly from awareness-raising activities (44.6%). The awareness has raised also in the case of Manatee Watch campaign, that was designed to increase boater knowledge of manatees, increase attitudinal support for manatee protection, and increase conservation intentions. The evaluation conducted after the campaign has indicated that individual attitude scores were positively correlated with safe boating behaviors in shallow waters including maintaining a slower speed and watching out for manatees. Overall knowledge about manatees was correlated with one manatee-safe boating behavior.

The survey as an effectiveness research method was also used for DEFRA water saving campaign. Its results have shown that one third of the general public claimed to be aware of the campaign, which was a significant uplift versus claimed awareness prior to the start of the campaign (31% vs 24%). The campaign also attained good levels of overall recognition for the level of media spend – 40%. The topic of encouraging water conservation was also present in "Don't let the winter 'fool' you; there is a still a water shortage - please conserve" campaign. Survey in this case has shown that most of the respondents (93.91 percent) remembered the water conservation campaign. In general, most of the Israelis (72.59 percent) complied with the challenge of saving more water, whereas only 25 percent of those who did not see the campaign thought they would save water; 75.6 percent were willing to save water after being exposed to the campaign.

Promising results were also achieved for the evaluation of Macau Energy Conservation Week that aimed to encourage both residents and enterprises to learn to read and interpret energy labels and to practice energy conservation in their daily lives. In this case 89.1% respondents agreed with the statement "These policies and campaigns can help improve energy saving awareness and promote energy-conversation behaviors".

However, the most interesting results were obtained in those campaigns that were evaluated using other effectiveness measurement methods. The most notable examples concern campaigns on biodiversity issues. The investigators applied monitoring of endangered populations in order to confirm the effectiveness of undertaken actions. In most cases improvement was reported, as a result of which the endangered population increased, or its decline was halted. This was the case of Give Swordfish a Break campaign. Monitoring swordfish populations in the North Atlantic has revealed that number of juvenile swordfish noticeably increased.

Another example of such approach is Crocodile Rehabilitation, Observance, and Conservation campaign. The increase of crocodile population indicates that these animals are no longer purposively killed in the area where the campaign was conducted. Therefore, it can be stated that such campaigns allowed to bring the SD target 15.5 (take urgent and significant action to reduce the degradation of natural

habitats, halt the loss of biodiversity and protect and prevent the extinction of threatened species) closer to its realization.

Another type of campaign that brought direct positive results concerned waste management (Ambon Bay beach litter clean-up). The observation of the decreased amount of litter allowed to confirm the success of the campaign. Moreover, members of surrounding villages continued to keep shores clean after the event. Densities of litter tended to decrease and then remain at relatively low levels at each of the cleaned sites during the six months of the monitoring program. Such outcomes can have a direct impact on every target within the Sustainable Development Goals that focuses on reducing pollution. Such kind of effectiveness evaluation is worth following, since it may prove the value of social campaigns in promoting and achieving SDGs, not only in individual countries like Poland, but also worldwide.

## 5. Conclusions

The study is a comprehensive analysis of social campaigns on environmental issues related to the protection of natural resources, which were conducted in Poland over a period of 25 years. The research shows that ecology and the environment remain a rare campaign topic. Out of 1698 records found on the website kampaniespoleczne.pl, only 341 (20%) were more or less related to ecology and environment, and only 84 of them met the research criteria and referred directly to issues related to conservation of natural resources. On the other hand, the literature shows that environmental campaigns may to a quite large extent translate into the desired change in social attitudes and thus contribute to slowing down the depletion of natural resources, thus supporting the achievement of numerous SDGs.

Unfortunately, it is not easy to estimate the effectiveness of the examined social campaigns, as it is difficult or even impossible to get access to campaign evaluation reports. Moreover, the reports happen to be an unreliable source of information, as the evaluation process is often not conducted properly. In many cases, the methods applied do not yield reliable results, so it is necessary to look for other ways to evaluate the effectiveness of campaigns. The actual impact of social campaigns on the realization of Sustainable Development Goals will be difficult to evaluate until a systematic evaluation framework has been developed.

Moreover, it seems that considering the costs required to run a campaign, it would be important to focus on its ex-ante evaluation, i.e. at the design stage, before it is launched. In the course of further research, we intend to develop a proposal for campaign evaluation by its recipients already at the stage of its preparation. The proposed method of evaluating campaign effectiveness will be based on a triangulation of diagnostic survey methods and cognitive neuroscience techniques. This kind of approach will help to obtain comprehensive results concerning the

strength of the campaign's message in the conscious and subconscious evaluation of the recipients.

The proposed method will be tested on a campaign created as part of the research project. The goal of the campaign will correlate with SDG 13, and more specifically with one of its targets, namely 13.3 (improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning).

Given the wording used in the definition of this target and relating directly to climate change awareness, this goal and its accompanying target seem the most appropriate case study for the proposed approach.

**References:**

Adzharuddin, N.A. 2013. Marketing mix through the integration of new and traditional media: a review of recent literature. International Journal of Social Entrepreneurship and Innovation, 2(1), 3. https://doi.org/10.1504/IJSEI.2013.052756.

Albert, J.S., Destouni, G., Duke-Sylvester, S.M., Magurran, A.E., Oberdorff, T., Reis, R.E., Winemiller, K.O., Ripple, W.J. 2021. Scientists' warning to humanity on the freshwater biodiversity crisis. Ambio, 50(1), 85-94. https://doi.org/10.1007/s13280-020-01318-8.

Appelboom, S. 2009. DEFRA water saving campaign: Evaluation research. The Department for Environment, Food and Rural Affairs. https://www.thensmc.com/oss/research/defra-water-saving-campaign-evaluation-research.

Arocena, J.M., Driscoll, K.G. 2002. Natural Resources of the World. In: Knowledge for Sustainable Development. An Insight into the Encyclopedia of Life Support Systems, Vol. III, 261-290. EOLSS Publishers/UNESCO.

Bartkowski, T. 1981. Kształtowanie i ochrona środowiska. PWN, Warsaw.

Berkowitz, J.M., Huhman, M., Heitzler, C.D., Potter, L.D., Nolin, M.J., Banspach, S.W. 2008. Overview of Formative, Process, and Outcome Evaluation Methods Used in the VERBTM Campaign. American Journal of Preventive Medicine, 34(6), S222-S229. https://doi.org/10.1016/j.amepre.2008.03.008.

Biagi, S. 2017. Media/impact: An introduction to mass media. ISBN-13: 978-1305580985 ISBN-10: 9781305580985, Amazon.

Bringezu, S., Potočnik, J., Schandl, H., Lu, Y., Ramaswami, A., Swilling, M., Suh, S. 2016. Multi-Scale Governance of Sustainable Natural Resource Use - Challenges and Opportunities for Monitoring and Institutional Development at the National and Global Level, Sustainability, 8(8), 778. https://doi.org/10.3390/su8080778.

Brownstein, C., Lee, M., Safina, C. 2003. Harnessing Consumer Power for Ocean Conservation. Accessible, transparent, and scientifically sound information can translate choices at the cash register into better marine conservation. Conservation in Practice, 4(4), 39-42. https://doi.org/10.1111/j.1526-4629.2003.tb00075.x.

Bruce, S., Tiger, M. 2011. A review of research relevant to evaluating social marketing mass media campaigns. Clean Water Education Partnership.

Coffman, J. 2002. Public communication campaign evaluation: An environmental scan of challenges, criticisms, practice, and opportunities. Harvard Family Research Project.

DeWan, A.A., Green, K.M., Li, X., Hayden, D. 2013. Using social marketing tools to increase fuel-efficient stove adoption for conservation results. Conservation Evidence, 10, 4-8.

Dickens, C., McCartney, M., Tickner, D., Harrison, I.J., Pacheco, P., Ndhlovu, B. 2020, Evaluating the Global State of Ecosystems and Natural Resources: Within and Beyond the SDGs. Sustainability, 12(18), 7381. https://doi.org/10.3390/su12187381.

European Environment Agency. 2019. The European environment — state and outlook 2020, 423. European Environment Agency. https://www.eea.europa.eu/publications/soer-2020.

Fernandez, M., Piccolo, L., Maynard, D., Wippoo, M., Meili, C., Alani, H. 2017. Pro-Environmental Campaigns via Social Media: Analysing Awareness and Behaviour Patterns. https://doi.org/10.34962/JWS-44.

Fundacja Nasza Ziemia. 2020. Raport z 27. akcji Sprzątania Świata - Polska. Fundacja Nasza Ziemia.

Gordon, R., Ciorciari, J. 2017. Social Marketing Research and Cognitive Neuroscience. In: K. Kubacki, S. Rundle-Thiele (Eds.). Formative Research in Social Marketing, 145-163. Springer Singapore. https://doi.org/10.1007/978-981-10-1829-9_9.

Górka, K. 2012. Zasoby naturalne. In: P. Trzepacz (Ed.), Zrównoważony rozwój – wyzwania globalne, 55-70. Instytut Geografii i Gospodarki Przestrzennej Uniwersytetu Jagiellońskiego. https://core.ac.uk/download/pdf/227054905.pdf.

Heiman, A. 2002. The use of advertising to encourage water conservation: theory and empirical evidence. Journal of Contemporary Water Research and Education, 121(1), 79-86.

Herbuś, I. 2016. Działania reklamowe – od komercji do kampanii społecznych. Zeszyty Naukowe Politechniki Częstochowskiej Zarządzanie, 22, 93-100.

Hernik, J. 2013. The effectiveness of social campaigns in the eyes of their receivers, on campaigns promoting safe driving example. Zarządzanie Publiczne, 4(24), 379-391.

Kassenberg, A. 2012. Globalne problemy ekologiczne i ich konsekwencje dla rozwoju gospodarczego. Biuletyn Polskiego Towarzystwa Ekonomicznego, 2(56), 97-98.

Kattumuri, R. 2018. Sustaining natural resources in a changing environment: evidence, policy and impact. Contemporary Social Science, 13(1), 1-16. https://doi.org/10.1080/21582041.2017.1418903.

Katz, H. 2019. Media Handbook: a complete guide to advertising media selection, planning, research, and buying. Routledge.

Kelley, L.D., Jugenheimer, D.W. 2008. Advertising media planning: a brand management approach (2nd ed), M.E. Sharpe.

Kicińska, M. 2012. Równość płci w polskich kampaniach społecznych. Wyd. Instytut Spraw Publicznych.

Klub Gaja. 2011. Zaadoptuj rzekę. Klub Gaja).

Korenkova, M., Maros, M., Levicky, M., Fila, M. 2020. Consumer Perception of Modern and Traditional Forms of Advertising. Sustainability, 12(23), 9996. https://doi.org/10.3390/su12239996.

Landers, J., Mitchell, P., Smith, B., Lehman, T., Conner, C. 2006. Save the Crabs, Then Eat 'Em": A Culinary Approach to Saving the Chesapeake Bay. Social Marketing Quarterly, 12(1), 15-28. https://doi.org/10.1080/15245000500488443.

Maibach, E. 1993. Social marketing for the environment: using information campaigns to promote environmental awareness and behavior change. Health Promotion International, 8(3), 209-224. https://doi.org/10.1093/heapro/8.3.209.

Meyer, R.E., Leixnering, S. 2015. Public Sector Organizations. In: International Encyclopedia of the Social & Behavioral Sciences, 597-602. Elsevier. https://doi.org/10.1016/B978-0-08-097086-8.73056-X.

Ministerstwo Infrastruktury. 2019. Europejski Tydzień Zrównoważonego Transportu. Raport Polska 2019. Ministerstwo Infrastruktury.

Morris, J.K., Jacobson, S.K., Flamm, R.O. 2007. Lessons from an Evaluation of a Boater Outreach Program for Manatee Protection. Environmental Management, 40(4), 596-602. https://doi.org/10.1007/s00267-006-0389-1.

Mosaberpanah, M.A., Khales, S.D. 2012. The Role of Transportation in Sustainable Development, ICSDEC 2012, 441-448. https://doi.org/10.1061/9780784412688.053.

Nycz-Wróbel, J. 2012. Świadomość ekologiczna społeczeństwa i wynikające z niej zagrożenia środowiska naturalnego (na przykładzie opinii mieszkańców województwa podkarpackiego), Zeszyty Naukowe Politechniki Rzeszowskiej, 286, 63-76.

O'Brien, K. 2005 Making A Splash: The Clean Water Campaign From Grassroots to Mass Media. Proceedings of the 2005 Georgia Water Resources Conference, 2005 Georgia Water Resources Conference, Athens.

OECD. 1997. Natural resources, Glossary of Statistical Terms. https://stats.oecd.org/glossary/detail.asp?ID=1740.

Omoogun, A.C., Egbonyi, E.E., Onnoghen, U.N. 2016. From Environmental Awareness to Environmental Responsibility: Towards a Stewardship Curriculum. Journal of Educational Issues, 2(2), 60. https://doi.org/10.5296/jei.v2i2.9265.

Paśko, I. 2011. O świadomości ekologicznej, In K. Gąsiorek (Ed.), Z teorii i praktyki edukacji dziecka : inspiracje dla nauczycieli przedszkoli i klas I-III szkoły podstawowej, 127-142. Wydawnictwo Naukowe Uniwersytetu Pedagogicznego.

Patnaik, R. 2018. Impact of Industrialization on Environment and Sustainable Solutions Reflections from a South Indian Region. IOP Conference Series: Earth and Environmental Science.

Pearson, E.L., Lowry, R., Dorrian, J., Litchfield, C.A. 2014. Evaluating the conservation impact of an innovative zoo-based educational campaign: 'Don't Palm Us Off' for orang-utan conservation. Zoo Biology, 33(3), 184-196. https://doi.org/10.1002/zoo.21120.

Prandecki, P., Sadowski, M. 2010. Międzynarodowa ewolucja ochrony środowiska. Wydawnictwo Akademii Finansów.

Qian, J., Mills, M., Ma, H., Turvey, S.T. 2021. Assessing the effectiveness of public awareness-raising initiatives for the Hainan gibbon Nomascus hainanus. Oryx, 1-11.

Raju, S. 2009. Organizations, Nongovernmental. In: International Encyclopedia of Human Geography, 13-18, Elsevier. https://doi.org/10.1016/B978-0-08-102295-5.10110-6.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F.S.I., Lambin, E., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H.J., Nykvist, B., de Wit, C.A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P.K., Costanza, R., Svedin, U., … Foley, J. 2009. Planetary Boundaries: Exploring the Safe Operating Space for Humanity. Ecology and Society, 14(2), 32. https://doi.org/10.5751/ES-03180-140232.

Rudi, J., Sherman, M.D., Kuhl, M.W., Rea, J., Bommarito, R.K., Bloomfield, C., Brown, S., Butler, B., Hawkey, K.R., Shortreed, T., Lynne, M. 2015. Public awareness campaigns. Report submitted to the U.S. Department of Defense.

Sissors, J.Z., Baron, R.B. 2010. Advertising media planning (7th ed). McGraw-Hill.

Song, Q., Li, J., Duan, H., Yu, D., Wang, Z. 2017. Towards to sustainable energy-efficient city: A case study of Macau. Renewable and Sustainable Energy Reviews, 75, 504-514. https://doi.org/10.1016/j.rser.2016.11.018.

Steffen, W., Richardson, K., Rockström, J., Cornell, S.E., Fetzer, I., Bennett, E.M., Biggs, R., Carpenter, S.R., de Vries, W., de Wit, C.A., Folke, C., Gerten, D., Heinke, J., Mace, G.M., Persson, L.M., Ramanathan, V., Reyers, B., Sörlin, S. 2015. Planetary boundaries: Guiding human development on a changing planet. Science, 347(6223), 1259855. https://doi.org/10.1126/science.1259855.

Tomusiak, R. 2012. Podręcznik dobrych praktyk kampanii informacyjno-edukacyjnej "Świadomi zagrożenia". Lasy Państwowe.

UNEP. 2015. Policy Coherence of the Sustainable Development Goals, a Natural Resource Perspective. An International Resource Panel Report. United Nations Environmental Program.

Uneputty, P., Evans, S.M., Suyoso, E. 1998. The effectiveness of a community education programme in reducing litter pollution on shores of Ambon Bay (Eastern Indonesia). Journal of Biological Education, 32(2), 143-147. https://doi.org/10.1080/00219266.1998.9655611.

United Nations General Assembly. 2015. Transforming our world: the 2030 Agenda for Sustainable Development. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

van der Ploeg, J., Cauilan-Cureg, M., van Weerd, M., De Groot, W.T. 2011. Assessing the effectiveness of environmental education: mobilizing public support for Philippine crocodile conservation: Effectiveness of environmental education. Conservation Letters, 4(4), 313-323. https://doi.org/10.1111/j.1755-263X.2011.00181.x.

Vörösmarty, C.J., McIntyre, P.B., Gessner, M.O., Dudgeon, D., Prusevich, A., Green, P., Glidden, S., Bunn, S.E., Sullivan, C.A., Liermann, C.R., Davies, P.M. 2010. Global threats to human water security and river biodiversity. Nature, 467(7315), 555-561. https://doi.org/10.1038/nature09440.

World Economic Forum. 2019. Water is a Growing Source of Global Conflict. Here's What We Need to Do. World Economic Forum. https://www.weforum.org/agenda/2019/03/water-is-a-growing-source-of-globalconflict-heres-what-we-need-to-do/.

World Economic Forum. 2021. Global Risks Report 2021, 16th Edition. World Economic Forum. https://www.weforum.org/agenda/2021/01/global-risks-report-2021.

World Wide Fund for Nature. 2020. Living Planet Report 2020 - Bending the curve of biodiversity loss. World Wide Fund for Nature.