

ADULTS' PERSPECTIVE OF ENVIRONMENTAL ISSUES IN THE ISLAND OF RHODES

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Abstract

The general objective of advanced countries is sustainable development, as a current and future issue, while the indicators that mark the degree of success in this direction depend on a wide range of social, economic, and political processes and decisions. For these reasons, a field study was conducted concerning adults in Rhodes's area during November and December 2020. It was implemented with the use of a structured closed-ended questionnaire and sent to 460 adults by e-mail. The sample of the study consists of 159 participants, who sufficiently completed the data investigations. The questions were about demographics with the selection of distinct answers, and Likert-scale answers. Using the statistical tool SPSS 23, data from the study were collected which are presented as percentage and on average answers. The findings suggest to a great extent the human impact on the current social and environmental issues. Concurrently, the high degree of their significance in the modern world and their negative impact in the ecosphere are accurately indicated in the study; issues that are highlighted in the international bibliography. At the same time, the study shows that the participants have an extensive knowledge of the current issues, and it highlights the Mass Media's crucial role as source of information in encouraging knowledge about environmental concerns. Financial incentives, the implementation of training courses for adults, the essential requirements to ensure products meet high health, safety and environmental standards are additional measures taken to lessen the human impact on the physical environment. Taking individual responsibility, limiting the production, consumption and waste management are key elements in redefining the citizens' environmentally responsible behavior and work towards strengthening the conditions for the implementation of key processes for sustainable development.

Keywords: Environmental issues, knowledge, opinions, adults

1. INTRODUCTION

Social reality is based on the exploitation of natural ecosystems and resources to meet the needs (Bansard & Schröder, 2021) and the growth of the world's urban population (OECD / EU 2020; Ritchie & Roser, 2018). This means an increase in demand for food, water, housing, electricity, roads, cars, and many products or needs. Abiotic and biotic factors that work together to create unique ecosystems are treated as resources that meet the needs of the modern citizen (Summers et al., 2012).

Humans affect the earth's ecosystem in many ways as the exploitation of natural resources is significantly related to environmental problems worldwide. The effects of the human impact on the natural environment are related to the social issues local communities face, which humans refer to as environmental issues, renouncing their responsibility or indirectly taking responsibility on account of development (Castro Pereira, 2015). Apart from that, the relationship between humans and the environment is symbiotic, yet one-sided. As populations grow around the world and as large industrialized or industrializing countries continue

to exploit the planet's natural resources, the relationship between people and the environment changes, and mostly for the worse (Arora, 2019). The region, the area, and the political, social, and historical factors are distinctive features of the environmental degradation as they are not only directly or indirectly related to their generative cause, the emergence and intensity but also to the possibility of eliminating or reducing them.

The major issue concerning human intervention on the environment is the exploitation of natural resources for economic growth since they are important for any country (OECD, 2011). The development of modern societies is understood mainly according to their economy, as product manufacturing, the consumption of goods and their disposal are related to a person's well-being and happiness and the economic benefit that results from the life cycle of a product (UNEP, 2015). Environmental degradation in terms of economic growth refers to a broad process through which environmental health and biodiversity are under threat (Shrinkhal, 2019; Bierbaum et al. 2018). This process can be natural, or it can be caused and accelerated by human activities (Shrinkhal, 2019).

Many international organizations recognize that environmental deterioration is one of the major threats to Earth. If the environment is irreparably affected, this could mean the beginning of further destructive effects (Smith, 2013). However, the natural environment is the most valuable "asset" we have as the air, water, soil, minerals, plants, and animals are the Earth's natural resources and are essential for the society and the economy as they provide fundamental life support and should not be taken for granted (OGL, 2018).

Humans impact the physical environment in many ways such as pollution, global warming, ozone depletion, acid rain, resources depletion, overpopulation, waste generation, deforestation, burning fossil fuels and biodiversity loss (Oswald Spring, 2016; Jianping, 2014; Camill, 2010), leading to environmental problems as humanity's rapidly growing consumption of natural resources is causing severe damage. Nevertheless, people's understanding of the catastrophic environmental consequences could potentially enhance their environmental concern and effort to act in environmentally friendly ways, resulting to a greater sense of environmental responsibility (Janmaimool & Chudech, 2020).

Environmental problems are defined as the harmful effects of human activities and behavior on the terrestrial environment (McMichael et al., 2008). More specifically, serious environmental questions have been raised over the last decades regarding environment and its conservation (Dunlap & Jorgenson, 2012). However, the paradox of this situation is that, while the degradation of the environment and the cause of the corresponding problems are regional, their effect is at a global level. Yet, natural resources were created for the enjoyment of humankind and not for the enjoyment of any particular person. They are the key factors for human development and human conditions. Thus, the human impact on the environment goes beyond the narrow local boundaries as these natural elements do not belong to anyone but to all (ccsu.edu, n.d.). Finally, globalization and internationalization necessitate a globalized approach and solution of these issues (Kaypak, 2012).

2. ENVIRONMENTAL CITIZENSHIP

The collaboration of governments, the corporate world and citizens is necessary to resolve environmental issues (van Noordwijk et al., 2021). However, regarding citizens, the expected results of their behaviors are not always feasible and, thus, a discrepancy arises between the final outcome and what the citizen is expected to do. This stems from the fact that environmental impacts depend on a combination of social, ecological, and economic practices (Shirk et al., 2012), especially when changes have been made in resource management and practices that affect the natural environment. Institutional and collective practices as well as individual behavior are in a constant interactive sequence and any changes can lead to different practices.

Environmental knowledge is considered the key element in environmental education (Otto & Pensini, 2017; Otto et al., 2016), which is a prerequisite for promoting sustainable consumption and environmentally friendly behavior in the wider context of environmental education and sustainability (Michelsen & Fischer, 2017). Being environmentally friendly means having a lifestyle that is better for the environment. Thus, individuals need to develop a deeper understanding of environmental issues and have the skills to make informed and responsible decision. Thus, environmental education is the key pillar in addressing ecological issues for sustainable development (Van Poeck, 2014).

In addition, social learning becomes a relevant interpretive framework for the assessment and management of natural resources. This means constant redefinition of the usual roles that scientists, policymakers and citizens play regarding sustainability (Jacobi, et al., 2016). As a result, people need to change the way they think and act by acquiring and shaping knowledge, skills, values and attitudes, elements that offer the opportunity to contribute to sustainable development (UNESCO, 2017).

3. METHODOLOGY

Modern human society has a negative impact on the environment world-wide leading to global warming, biodiversity loss, pollution, which has a negative effect on the ecosystems and human health, sea level rise, extreme climate events, diseases, food safety and so on (Camill, 2010).

The aim of the present study is to explore the views of adult citizens regarding current social and environmental issues, their importance, accountability for the probable cause, how informed the participants are and their source of information. In addition, the study examines the growing pressures on the ecosphere, to what degree actions are important to reduce the ecological footprint, to what extent the proposed solutions are important to reduce or eliminate the problems and to what extent the suggested educational proposals are important to reduce or eliminate the problems in the context of education for sustainable development. Suffice to say, the participants' perceptions on the environmental conditions are essential as they verify their attitude towards the environmental problems which is necessary to redefine their overall behavior (Nash et al., 2019).

The research was conducted with an anonymous closed-ended questionnaire (Google forms), which was sent by e-mail to the participants, as it was considered the most appropriate approach for the implementation of this research (Taherdoost, 2016). 460 questionnaires were sent to adults in the town of Rhodes during December 2020, of which 159 were sufficiently completed and they comprise the study's samples. The questionnaire included nominal questions and five-point Likert scale questions (1: least important - 5: very important). The data was coded and processed with the statistical software SPSS 23 and are presented, depending on the type of variables. They are reported descriptively presenting percentages in the participants' statements and with Averages. Issues were kept to regarding the participants' anonymity as well as the research's objectivity and validity during the process.

According to the study's demographic data, 69.2% of the participants were women, 32.2% were men and one statement was genderless. 35.7% of the study subjects were the parents of school students (35.7%) and 36.3% were teachers while some participants were students (15.7%) where as 12.1% did not declare their status. Regarding the participants' age, 14.5% were from 18 to 30 years old, 29.6% were from 31 to 40, 32.1% were from 41 to 50, and 23.9% were 51 to 60. Regarding the participants' educational status, 54.1% had university education, 34% were postgraduate degree or doctorate holders while the rest of the participants had compulsory basic education (19.4%).

4. STUDY FINDINGS

As far as the most crucial contemporary issues are concerned, the participants indicate that they identify as social issues, racism (84.3%), immigration (58.5%), terrorism (74.2%), education (63.5%), human rights (73.6%) and poverty (71.7%). Respectively, as social but mainly environmental issues are identified deforestation (67.9%), acid rain (69.8%), stratospheric ozone depletion (64.2%), greenhouse effect (61%), water pollution (51.6%), biodiversity reduction (52.2%), soil erosion / leaching (61%) and air pollution (53.5%). Finally, as social and environmental issues concurrently are recognized war (69.8%), urbanization (64.2%), overpopulation (71.1%), diseases and infectious viruses (58.5%), the use of nuclear materials (63.5%), energy production and use (57.9%), traffic congestion (64.2%) and stray animals (54.1%). Waste is classified not only as an environmental issue (48.4%) but also as a social one (49.1%).

Regarding the significance of the issues referred to with an average rating on a 5-point scale, very high importance is attached to war (4.80), education (4.74), human rights (4.72), the use of nuclear materials (4.65), water pollution (4.60), poverty (4.59), air pollution (4.53), social inequality and discrimination (4.53), waste generation and management (4.53), the existence of diseases and viruses (4,52), terrorism (4,51) and in the greenhouse effect (4,50).

Great importance is attached to ozone depletion (4,50), deforestation (4,45), biodiversity reduction (4,39), migration (4,38), energy production and use (4,38), racism (4.33), acid rain (4.20), soil erosion and leaching (4.17) and overpopulation (4.03).

Issues regarding traffic congestion (4.00), urbanization (3.87) and stray animals (3.87) are considered quite important.

Apportioning responsibility for the above-mentioned questions (on a 5-point Likert scale), the participants state the citizens are mainly responsible for ensuring a healthy environment (73.6%). They are concerned as technology alone cannot solve all environmental problems (86.8%). They elaborate human beings should not consume natural resources uncontrollably as full recovery of the ecosystem can take years, decades or even

hundreds of years (90.5%) and that it is essential to reduce energy consumption in their daily life (69.8%). They also establish that people need to worry about waste and recycling (62.3%), and that human activity is causing environmental degradation (84.8%) while nature does not have sufficient mechanisms to reduce or even eliminate the human impact (93.7%). The study subjects are interested in participating in activities concerning environmental protection (57.8%). In contrast, they do have the intention to buy fewer products (just the essentials) to reduce their ecological footprint (42.6%). In addition, they do not apportion responsibility to society as a whole but they accept the individual responsibility (82.2%), while they intend to save energy to a satisfactory extent (to some extent 45.5% and rather much / very much 26.4%).

Regarding the participants' views on environmental issues in general, they state that they are not problems as naturally occurring processes alter the Earth (70.4%) but they are the anthropogenic processes produced by Man's activities that impact the physical environment (82.3%), while in the statement that the natural hazards are elements of the physical environment that are aggravated by the Man's interventions in the ecosystem, the study subjects' answers do not deviate significantly. Moreover, the participants state that the environmental issues do concern them to a significant degree (57%).

Participants obtain information about environmental issues to a small extent during their studies at a higher education institution (more or less, 52.2%), from Postgraduate programs (more or less, 75.5%), scientific conferences and various related presentations at workshops (more or less, 58.5%), from Non-governmental or Environmental organizations (more or less, 58.%) and statutory authority such as the European Union, the Center for Renewable Energy Sources (CRES), the Ministry of Energy and Environment, EPA USA and so on (little, 63.7%).

They get more information from television and the media (to some extent 34.6%, rather much / very much 34.6%), the internet (to some extent 25.2%, rather much / very much 67.9%), magazines (to some extent 32.3%, rather much / very much 30.4%) and friends and acquaintances who are interested in or have knowledge of the environmental issues (to some extent 27%, rather much / very much 32.1%). Regarding information obtained about the physical environment while attending short-term training programs, the statements are evenly distributed (little 50.3%, to some extent 20.8%, rather much / very much 28.9%).

The participants acknowledge that the issues which have the greatest impact on the environment in terms of the personal and family life concern food overconsumption (to some extent 35.2%, rather much / very much 54.7%), bottled water use (to some extent 30.8%, rather much / very much 41.5%), product packaging purchased in the household sector (to some extent 27%, rather much / very much 66.7%), electricity consumption (to some extent 19.5%, rather much / very much 74.2%), extensive use of electrical appliances (to some extent 24.5%, rather much / very much 67.9%), extensive use of cars in daily life (to some extent 15.1%, rather much / very much 78.7%), non-use of bicycles, where they can be used (to some extent 18.9%, rather much / very much 71.1%) and the improper waste management by the municipalities that are responsible for waste treatment (to some extent 13.2%, rather much / very much 83%). Respectively, the participants' answers are evenly distributed regarding the use of public transport and the use of water in the gardens as the study subjects do not consider these issues have the greatest impact on the environment.

In addition, regarding the question about the "several environmental issues that would have been significantly reduced or eliminated", the participants state that the non-use of food and energy products (to some extent 30.8%, rather much / very much 48.4%), the significant restriction of materials' use and energy (to some extent 26.4%, rather much / very much 64.7%), the restriction of materials' use, packaging and so on (to some extent 33.3%, rather / very much 35.2%) and the restriction of energy use (to some extent 34.6%, rather much / very much 30.9%) would have a very positive effect on the reduction of the current environmental problems, acknowledging the need to change the modern consumer and energy-intensive life style. Moreover, concerning the statement "if we did not make any change in our daily life but only intensified the waste recycling processes", there is a significant refusal rate (not at all / little 69.8%), indicating that recycling alone cannot bring significant positive results, when the other sectors do not comply with the logic of reduction.

Regarding the measures to address environmental issues at the economic and state level, the participants identify that the state must establish stricter environmental criteria in the construction and industry sector and impose them to citizens (to some extent 11.3%, rather much / very much 87.4%). Financial incentives should be given to individuals to purchase eco-friendly energy appliances (to some extent 14.5%, rather much / very much 81.8%). The production of materials such as disposable plastics that significantly burden the environment and intensify the energy issue should be prohibited (to some extent 7.5%, rather much / very much 90%). Industrial units should be compelled to recycle electrical appliances or products (to some extent 10.1%, rather much / very much 87.4%), the manufacture of disposable plastic materials should be

banned (to some extent 10.1%, rather much / very much 87.4%) and heavy fines should be imposed in cases where the construction specifications and the recycling procedures are not abided by (to some extent 13.2%, rather much / very much 86.8%). It is noteworthy that all the statements of possible counter measures take high percentages of positive positions.

Regarding the measures to address environmental issues at education level, it is vital that adult education should be promoted with the design of specific programs of targeted educational interventions by the state (to some extent 17%, rather much / very much 79.8%) and by the local municipalities (to some extent 14.5%, rather much / very much 81.1%), with the design and promotion of educational television for the public (to some extent 15.1%, rather much/ very much 81.1%), with the design of a single database with relevant material such as saving guide, rational energy and material use or non-use (to some extent 14.5%, rather much / very much 80.5%) and the establishment of more environmental programs by universities with open access for the public (to some extent 14.5%, rather much / very much 82.4%).

5. DISCUSSION AND CONCLUSIONS

Understanding the dimensions of the ecosphere destruction is crucial as the environmentally informed and critically thinking citizen can significantly diminish the environmental degradation for which man himself is responsible, usually unconsciously. As the anthropogenic problems of the environment are ahead of us and it is up to us whether there is deterioration or improvement, the study participants, who have a high level of education in general, recognize precisely and classify correctly the current social and environmental issues highlighting their anthropogenic dimension (Shrinkhal, 2019; CEB 2015).

Simultaneously, the degree of importance is also accepted regarding the most crucial among them (war, racism, human rights and social discrimination, etc) both on a social level and that of deterioration of the biosphere. These issues include depletion of the ozone layer, deforestation, biodiversity decline, air and water pollution, acid rain, overpopulation, etc. (European Commission, 2021). Their importance likely reflects the average person's concern as a first step towards a more environmentally friendly behaviour on a meta-level. At the same time, the personal responsibility of the individual, on a daily behaviour and decisions level, is also recognized, rightly considering that technology, which in recent years has proven a powerful weapon against environmental degradation, cannot prevent and correct the environmental impact of reckless human behaviour, but apparently only partially scale down the issue.

Hence the need is emerging for containment of overconsumption of materials, products and energy to the level of their daily lives (Meenakshi, 2021). That these are social problems is also emerging as knowledge as they concern the choices of the contemporary human on a daily personal and social level and in the living standards, he himself has shaped. In particular, reduction of energy consumption, plastic and bottled water, packaging materials, the plethora of possessions and use of gadgets and appliances, consumption of electricity and the widespread use of cars as opposed to bicycle use and the production and management of waste constitute the most significant of impact parameters.

Television, the Media, the Internet and various magazines appear to be contributing substantially towards enhancing their environment-friendly behaviour, while the potential of modern media and information is also making its presence felt (Ors, 2012). It also seems that their studies or Master's degrees, though most are of a university education, have not provided a satisfactory gnostic base on environmental issues, and neither have the potential actions of NGOs and other official legally established bodies (EU, Green electricity, Ministry of Energy and Environment, etc.).

Among possible supporting measures for the reduction of environmental impact there are those suggested for the adoption of educational programs for the general public, as education is a contributing factor to the development and alteration of human behaviour within the guidelines for sustainable development. On a par, it is proposed the media, as a powerful factor in shaping perceptions and views is exploited (Ors, 2012; Seema, 2012) while the creation of an open access database for the general public, would be another important asset in informing people. Of course, the potential of higher education, where university information programs open to the general public could be established, is not excluded.

However, the use of more restrictive measures, though many developed countries have adopted stricter environmental regulations (Xu et al., 2013), could bring significant environmental benefits including the introduction of stricter criteria on environmental guidelines and incentives for the general public to buy energy-saving appliances. Furthermore, the issue of restricting the manufacture and use of plastics and the obligation for manufacturing industries to phase out materials themselves are equally important compensatory measures helping the environment.

In general, accepting personal responsibility, reducing production, availability, consumption and disposal of materials could provide the conditions for a healthier environment and make a significant positive contribution to sustainable development. Adults, also, express positive opinions on the environment by forming their own view regarding the human origin of environmental issues, recognising man's contribution to their creation and deterioration. It should not be overseen that the environment is the fundamental basis for human and other life support and the guarantee of sustainable human development (Jianping et. al., 2013).

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