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CULTIVATING ENVIRONMENTAL VALUES AND GREEN TECHNOLOGIES IN SWITZERLAND

Abstract. *The present article deals with the main concepts of environmental attitude and ecological behavior in Switzerland. It contains the review of the key aspects of environmental protection and the role it plays in the national mentality. The prior objective is to investigate the causality between these values and culture. The results of this investigation serve for creation and substantiation ecological behavior and its environmental consequences in Switzerland*

Keywords: *environment, ecological behavior, Swiss culture. green IT, cleantech, recycling, reusable technologies.*

Statement of the problem. Over the last decades, a number of environmental problems that threaten the environment and human life have been identified; these include global warming, ozone depletion, water and air pollution, loss of species, and farmland erosion. One main cause of these problems is overconsumption of natural resources, with the industrial nations showing the highest per-capita consumption. Any remedy will require urgent changes in human behavior and cultural practices to reduce consumption, as well as the development of cleaner and more efficient technologies (Oskamp, 2000) [4].

In accordance with *The Report of the Federal Council 2018*, clean water, good quality air, and healthy forests — are the results Swiss environmental policy has achieved in the last several decades. This has been made possible not only through technical and regulatory measures, but also through the active cooperation of the people in our country. They and all the political, economic and scientific actors involved in this policy deserve to be acknowledged and sincerely thanked here for what has been achieved [1].

Analysis of recent research and publications. Previous psychological environmental research has typically focused on the role of factors within the individual, such as knowledge, environmental concern, attitudes, norms, and values (e.g., Hines, Hungerford, & Tomera, 1986/87; Maloney & Ward, 1973; Van Liere & Dunlap, 1981). Similarly, in the domain of green consumerism, research has examined the relation between consumer behavior and consumer attitudes and motives or has searched for the

profile of the green consumer (e.g., Mainieri, Barnett, Valdero, Unipan, & Oskamp, 1997; Ebreo, Hershey, & Vining, 1999; Roberts, 1996).

Research indicates that measures of specific attitudes (e.g., judgments about products or behaviors) rather than general measures of environmental concern (e.g., judgments about environmental problems) are likely to manifest in environmental behavior (Hines et al., 1986/87; Gardner & Stern, 1996; Maloney & Ward, 1973; Schlossberg, 1991; Van Liere & Dunlap, 1981). A consumer survey by Mainieri et al. (1997) clearly supports the suggestion that specific consumer beliefs predict environmentally friendly consumer behavior more accurately than does general environmental concern.

Likewise, Roberts (1996) suggests that in order to motivate behavioral changes, consumers must be convinced that their behavior has an impact on the environment or will be effective in fighting environmental degradation.

Numerous studies have revealed that a personal norm — a feeling of moral obligation — is a powerful motivator of environmental behavior (e.g., Hopper & Nielson, 1991; Stern & Dietz, 1994; Stern, Dietz, & Black, 1986; Vining & Ebreo, 1992). These investigations suggest that environmentally friendly behavior may be characterized as morally demanding.

Key aspects of environmental policy of Switzerland are also specified in a number of documents, such as *Environment Switzerland 2018*, prepared by the Federal Council; «*What's up in Green IT 2018*», prepared by Green IT Global, the European consortium of Green IT organizations; materials of the Federal Office for the Environment FOEN; and pieces of research prepared by Emma Thomasson, Theodor Stalder, Christian Koch, Julius Heinemann, Regine Wieder, Veronika Hübl etc.

Purpose of the research. Environmental concern is the most serious issue facing the world today. People's attitude to these problems plays significant role. The core aim of the article is to review and analyse the main concepts of environmental attitude and ecological behavior in Switzerland. We also aim to analyze the peculiarities *Environmental Protection and Recovery Policy* in Switzerland and decide on whether the Swiss green technologies can be applied in Ukraine.

The key findings. According to Milfont et al. (2006) environmental concern (EC), reflects the emotions, or worry, linked to individuals' beliefs about environmental problems. However, not everyone is pursuing pro-environmental (green) Behavior. People make decisions based on a multitude of criteria, some of which are culturally-based, and some are not. Milfont et al. (2006) noted the impact of culture stating that it can influence the environmental attitudes people will likely develop and subsequent green behavior people will likely take.

Different lifestyles may relate to positive environmental Behavior in different ways. For example, individualistic people tend to value the importance of their own specific needs and beliefs-seeking short-term benefits (e.g., saving money). Granzin et al. (1991) reflected on the fact that there may be a cost/benefit thought process taking place in the consumer's mind, which is referenced as a hedonic goal by Lindenberg (2007).

On the other hand, collectivistic individuals tend to be more influenced by group thought processes with a focus on harmony. For example, they show a willingness to share scarce resources, avoid conflicts with leaders, and focus on long-term goals to

benefit the good of the group (e.g. benefit the community, protect nature). Social norms can act as a context for the adoption of other environmental Behaviors. Not everyone is sufficiently self-motivated to become involved in pro-environmental Behavior.

Both proper distribution logistics, as well as pertinent information is important to drive consumers to get involved in pro-environmental behavior.

Switzerland's strong economy increases its opportunities for tackling larger environmental challenges. However, economic prosperity itself also has a dominant influence on climate, water use, biodiversity, the nitrogen cycle and other environmental compartments.

An intact environment is an essential basis for daily life and, by extension, Switzerland's health, welfare, economy and competitiveness. Measures to protect natural resources and use them sustainably, safeguard resilient ecosystems and maintain a high degree of biological and landscape diversity, as well as protect the climate and adapt to climate change ultimately serve to preserve our life-sustaining resources. These also include clean water and air, soil fertility, pollination, protection against natural hazards and an adequate supply of energy and raw materials.

Lakes, mountains and clean air are associated with Switzerland's quality of life. Beyond its picture postcard image, the natural environment is an integral part of Switzerland's identity and has forged the national spirit. To safeguard this environmental heritage the Federal Council and the people of Switzerland have implemented a series of important measures in recent years.

Increasing consumption and economic development, growth of population: these are three biggest factors that influence on natural resources. To ensure their sustainability, Switzerland encourages its citizens to consume resources responsibly and promotes optimal techniques for their use. One area of action, for example, is to give priority to renewable energy in the use and production of resources. The policy on waste and primary products has been developed as part of the green economy with the aim of further closing materials cycles, promoting the recycling of primary products, reducing both the demand for them and disposing of waste products [2].

According to different reports on Swiss ecology, the work of Federal Government in the sphere of Green Economy aims to improve the resource efficiency of consumption and production and protect natural resources. It is within the governmental plans to reduce the environmental impact of consumption not only inside the country but also for the resource consumption outside it, for which Switzerland shares responsibility.

The environmental impact that Swiss consumption causes abroad is considerably greater than that caused at home. This has already been shown in a pilot study (Jungbluth et al. 2019) commissioned by the FOEN for the year 2018.

Many environmental impacts such as greenhouse gas emissions, biodiversity loss and soil sealing are complex and cannot be eliminated by simple, isolated measures. Manufacturing, mobility and housing systems are responsible for most of the environmental effects in Switzerland. To achieve the ideal of a sustainable and intact living space, these three systems must be transformed [3].

According to *Green IT Strategy*, Swiss environmental policy's interaction with technological and social innovations has been mainly restricted to environmental research and technology promotion, which is specifically pursued by institutions such as

Innosuisse, the Technology Fund, the Swiss National Science Foundation, and the National Research Programmes. In this way, the federal government already supports the development of new environmentally friendly processes and products and their marketability. The types of collaboration and the actors involved in these projects are extremely diverse. However, support is not only given to individual research projects, but also to resource-efficiency consulting for companies. While government actors support local innovations at the communal level, such as in food production or housing, by making areas available for that purpose or designating specific areas from development zones, such innovations have been rather scarce at the federal and cantonal levels up to now. That is why experience sharing between cities, cantons and federal authorities is extremely important in order to enable rather than hinder futureproof forms of mobility, such as in transport infrastructure planning. The stronger emphasis on niche innovations from business and society is another essential tool in the environmental policy toolbox and plays an important role in providing additional stimulus for the necessary changes in production and consumption systems [1].

To innovate and to develop new technologies while saving natural resources is possible. Cleantechs and industrial services called «clean» which use energy and raw materials in order to improve production efficiency, are summed up in the Swiss start-up ecosystem. According to the *Swiss Cleantech Report 2017*, innovative Swiss start-ups are ready for the next level in product development and «green» services. Today, the sector constitutes 5, 5% of Swiss workforce, that is an increase of 25% for the five past years.

With 4000 patents per million inhabitants, Switzerland comes first on the podium for the creation of businesses in green technologies. Out of the record figure of 909 millions CHF raised in 2016 by Swiss start-ups, about 700 millions went to biotechnology (400 millions) and ICT (270 millions) players. Among the recipients of these investments, many are Cleantech start-ups from Western Switzerland. CleantechAlps, a front-runner in support for Cleantech SME from Western Switzerland, welcomes the great rise of «clean» technologies in Romandie. It is the case of *Greenmotion SA, Vaud*, which offers a charging point for electric vehicles at reduced cost. The start-up has set the objective of selling to car manufacturers 1600 elements in 2020 [4].

Following the Fukushima nuclear disaster, the Federal Council decided that Switzerland should withdraw completely from nuclear energy by 2050. Hand in hand with this strategy goes the *Cleantech Masterplan*, a political instrument to strengthen the development of cleantech productions and services in Switzerland. The capacity of the Swiss for innovation and high-tech manufacturing further ensures that the country leads the way with its transport networks, production of electricity from renewable sources, waste processing and recycling of materials, and energy efficiency. It is therefore not surprising that Switzerland has become a leading nation in patents for wastewater treatment technologies and waste management including recycling. The country ranks first in cleantech patents per capita, which illustrates that Switzerland is on the right track with increasing investments in clean technologies [5].

As Federal Department of Foreign Affairs puts it, Switzerland is one of the cleanest countries due to:

1) *waste recycling*. It is impossible to go through a city without coming across them: waste recycling bins are everywhere to be seen: in railway stations, on street corners, in

parks and other public places. Between 1990 and 2015, the waste-recycling rate went from 15% to 57% in the canton of Vaud, one of the 26 cantons that make up this country. According to the Organisation for Economic Co-operation and Development (OECD), Switzerland has one of the highest waste-recycling rates, of more than 50%! Levying a tax on bags for household waste in almost all cantons, improving waste collection points (with stricter waste separation) and the surge in the number of initiatives to reduce waste production, such as local shops that sell products directly from the shelf in re-usable bags, are clear signs of a growing awareness of the environment.

2) *innovations in environmental protection techniques*. This could be a slogan for the flood of innovations on the environmental market. Technology parks, support for innovation, associations and other financing measures, the boom in ‘cleantech’ projects is unprecedented. One study on the subject that appeared in 2017 shows that the sector is booming, with a 25% increase in the number of jobs in the last five years and more than 200 start-ups in the last ten years. With some 4,000 patents per million inhabitants, making approximately 32,000 patents in all, Switzerland ranks first in terms of setting up green technology enterprises.

3) *transport with low environmental impact*. Switzerland is a leader in railway travel. Possibly, if one considers that the Swiss are Europe’s most regular users of the railways. Even though train travel is expensive, the level of comfort, the punctuality and frequency of trains, their state of cleanliness, and the quality and density of the network are criteria that the Swiss apply in their choice of mode of transport — add to this a growing environmental awareness, which in 2014 prompted more than 60% of the population to support a permanent fund for developing the country’s rail infrastructure. Another practice that the Swiss have enthusiastically taken to is car pooling. An increase throughout Switzerland of the car-pooling centres (almost 1,500) of Mobility Car, the country’s leader in this sector, and the fact that one resident in 60 makes use of this system clearly illustrate the willingness to use eco-friendly modes of transport.

4) *the use of clean energy*. Solar and geothermal energy, heat pumps, wind turbines, hydraulic power, wood and other sources. The development of clean energies is like the story of the Hydra: for every existing technology scrapped, two new technologies are developed. Although hydroelectric power remains the main source of renewable energy in Switzerland (56%), «new renewables» as they are referred to, are increasingly competing with the country’s traditional source of renewable energy. This is the case of biofuels, the use of which increased by 70% last year. It is a promising prospect considering that fuels account for almost 30% of total energy consumption in Switzerland. Not to forget solar energy, which has seen a constant increase in production – of a multiple of four over the past five years, thanks to the continuing expansion in the use of photovoltaic cells, 80% of which are installed on residential buildings [6].

Eric Weiner, a BBC columnist, specifies the following features of the national character, «The alpine nation really is highly efficient. And meticulously punctual. Clean, too». We believe, that national mentality and cultural traditions can be added to the above list of the factors, which facilitate the official environmental policy.

Today, every country can learn the Swiss experience and improve the environmental situation in their own one.

Conclusion. Switzerland's greatest strength as a destination is its nature. Air and water have become cleaner because of statutory requirements and technological advances. Lakes and rivers attract bathers, and air pollution has decreased significantly. Most forests are healthy today, and there are fewer and fewer toxic contaminated sites, thanks to remediation measures. The Swiss economy is continuously improving its resource efficiency by increasing the value added per unit of material. Switzerland can also claim progress in decoupling economic growth from energy consumption and greenhouse gas emissions. Beyond its picture-postcard image, Switzerland's natural environment is an integral part of the country's national character and cultural identity.

We would recommend such perception of nature to be borrowed by Ukrainians.

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GLOBAL ENVIRONMENTAL VALUE SYSTEMS: WHICH OPTION TO CHOOSE?

Abstract. *The article dwells upon the two systems of natural and scientific worldviews: technocentrism and ecocentrism. Technocentrism focuses on technology and science as a way to repair any damage done to the environment rather than changing ethical perspectives on environmental issues. Ecocentrism, on the other hand, places the ecosystem at the center and stress that we need to limit our natural resource exploitation, so that we can conserve the environment and prevent its destruction. Its prior objective is to investigate the advantages of ecocentrism over technocentrism.*

Keywords: *ecocentrism, sustainable development, technocentrism, anthropocentrism, environmental value system.*

Statement of the problem. At present, environmental degradation has become one of the most complex and controversial problems. Over the years, economists have studied and discussed the relationship between human and economic activity. It is widely believed that the growth of industrialization, the extensive extraction and the maximum possible use of natural resources have caused many environmental problems, such as global warming, air pollution, water pollution, biodiversity reduction, and climate change. All these problems have led not only to environmental degradation but also to serious consequences for human health. Most countries sacrifice with the environment for the sake of economic development and economic wealth. Among the commonly used tactics is increasing manufacturing and industrialization as a way to boost the economy and when the economy is on its feet, the countries would compensate for the environmental damage done. The ways people feel about environmental issues make up the basis for so-called Environmental Value Systems or Environmental philosophies.