

Secondly, many kinds of animals and plants will not acclimate to the new conditions and therefore will perish. It means that there will be reduced diversity of terrestrial fauna. Finally, the majority of governments of different countries will certainly have many difficulties, because they have to work out a plan to solve economic, social and other problems, arising from climate crisis.

To sum up, I am strongly convinced, that changing climate is a very big and serious trouble for humanity. It is necessary for all of people to understand the threat and do everything possible to suspend the development of the problem.

References

1. The United Nations Framework Convention on Climate Change /21 March 1994.
2. What's in a Name? Global Warming vs. Climate Change/ NASA/ 23 July 2011.
3. Ecological Politics: Different Dimensions /Gopal Bhargava 2002. p. 211.
4. My own serious awareness of the greenhouse effect began ca.1980 when I began to study pro- and anti-nuclear power arguments/ Weart Spencer 1988, p. 338.
5. Struggling to Do Science for Society /Robert Pool, 1990, quote p. 672. Also Hansen, interview by Weart, Nov. 2000
6. Greenhouse Effect and Global Climate Change: hearing before the Committee on Energy and Natural Resources, part 2 / U.S. Senate, Committee on Energy and Natural Resources, 100th Cong. 1st sess., 23 June 1988
7. Talking about Climate Change and Global Warming / Joo, Gea-Jae; Kim, Ji Yoon; Do, Yuno; Lineman, Maurice, 2015
8. What's the difference between global warming and climate change? / NOAA Climate.gov., 17 June 2015.
9. Weather, global warming and climate change / Holly Shaften, 2016
10. Climate Crisis? The Politics of Emergency Framing / Patrick Hodder; Martin Brian, 2009
11. Why the Guardian is changing the language it uses about the environment / Damian Carrington, 2019
12. «Climate emergency» is Oxford Dictionary's word of the year / Doyle Rice, 2019
Spring 2018 Global Attitudes Survey. Q22d / Pew Research Center, 2018
13. A look at how people around the world view climate change / Moira Fagan, Christine Huang, 2019

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THE IMPACT OF CULTURE ON ENVIRONMENTALLY RESPONSIBLE BEHAVIOUR IN NEW ZEALAND

Abstract. The present article deals with the cultural variables and the way they influence the citizens' attitude to the environment in New Zealand. It analyses New Zealanders' environmental

consciousness and how some of the Hofstede's cultural dimensions determined it. Its prior objective is to investigate the correlation between these dimensions and environmentally responsible behavior of the citizens. The results of this investigation serve for understanding and adaption of New Zealand experience of protecting the environment on an individual and country level.

Keywords: *environment, culture, cultural dimensions, New Zealand.*

Statement of the problem. A long history of interdisciplinary research highlights the powerful role that human values play in shaping individuals' engagement with environmental issues. That certain values are supportive of pro-environmental orientation and behavior is now well established. But as the challenge of communicating the risks of climate change has grown increasingly urgent, there has been a rise in interest around how values shape public engagement with this issue. Using a national probability sample of New Zealanders, this study examines socio-structural and psychological variables underpinning core cultivating environmental values — «climate change is real» and «climate change is caused by humans».

Nowadays people respond to global change in their beliefs, behaviors, values and grief (associated with losses incurred). People that are less likely to believe in climate change, adopt pro-environmental behaviors, or report ecological grief are assumed to have different psycho-cultural orientations, and do not perceive changes in environmental condition or any impact upon themselves. Many conceptual approaches exist for organizing and identifying environmental values. Stern, P. and Dietz, T. connect the basis for environmental concerns to three general classes of valued objects: the self (egocentric), other people (homocentric), and nonhuman life (ecocentric).

Environmental problems, we face nowadays, threaten the planet and human lives. Climate change and global warming progressed to a point where global society is unable to maintain sustainable development. The situation escalates as many countries continue to behave destructively, prioritizing economic welfare over environmental sustainability. Their postponement to address environmental issues is constantly increasing risks to our life, health, and future. Meanwhile irresponsible behavior of particular countries put our planet in danger, there are also examples of «good global citizens» whose efforts aimed at environment protection are worth a praise. Governments and residents of Denmark, Sweden, Austria, and New Zealand demonstrate strong responsiveness to environmental problems. Such an attitude is determined by a range of factors and culture is objectively one of them. Understanding of connection between culture and an environmentally responsible behavior may help to adapt the practices and experience of such countries.

Analysis of recent research and publications. Daniel Sivek, Harold Hungerford, Paul C. Stern, Wesley Shultz, and Gabe Ignatov investigated the concept of environmentally responsible behavior and the factors that determine it.

These researchers consider the culture to be of the variables that shape people's attitudes to the environment. Geert Hofstede developed the concept that describes the cultural peculiarities of different countries, New Zealand in particular. Sushant Kumar, Vishlavath Giridhar, Dr. Pradip Sadarangani, Diana Tsoy, Gao Yongqiang, George Emm study the connection between culture and environmental consciousness. Halkos, Nickolaos G. Tzeremes, and others, who provide a detailed analysis of the impact particular cultural variables, have on the individuals' willingness and readiness to protect

and take care of the environment. Kenneth F. D. Hughey, Geoffrey N. Kerr, and Ross Cullen provided a substantial review of New Zealanders' perception of the environment and the measures they undertake in order to protect it. The works of all these researchers contain profuse theoretical information and practical knowledge, which can be the basis for identifying the causality between New Zealand culture and environmentally responsible behavior.

Purpose of the research. The aim of the article is to find out the cultural roots of the environmental responsibility in New Zealand and identify what values and lifestyles best explain environmentally friendly behaviours and how it forms in New Zealand.

The key findings. According to Sivek & Hungerford, environmentally responsible behavior describes the actions of someone who advocates sustainable or diminished use of natural resources (Sivek D.J., & Hungerford H., 1989/1990). Stern defines it as public environmental activism, nonactivist behaviors in the public-sphere and private-sphere environmentalism and suggests that such behavior can be characterized by its influence on the availability of the materials or energy as well as on the structure and dynamics of ecosystems (Stern P.C., 2000). In general, environmentally responsible behavior relates to actions, aimed to prevent or solve environmental problems.

Multiple scientific researches are devoted to the factors that may determine environmentally responsible behavior. Stern's review specifies several of them including individuals' values, attitudes, beliefs, and knowledge (Stern P.C. 1992). Schultz stated that differences in people's attitude to the environment are the result of cultural peculiarities (Schultz P., 2002). Ignatow believes that cultures shape citizens' values and attitudes (Ignatow G., 2006). At the same time, it must be noted that nations can consist of various cultural groups that share different norms, beliefs and traditions. Consequently, such national diversity can lead to a certain variation in environmental attitudes.

The connection between culture and environmental consciousness can be explained through the prism of Hofstede cultural dimensions' theory. As Sushant Kumar, Vishlavath Giridhar and Dr. Pradip Sadarangani put it, there is a strong correlation between people's attitude to the environment and Hofstede's «individualism/collectivism» dimension (Kumar, Sushant & Vishlavath, 2019). The conducted research shows that people in individualistic societies tend to be much more environmentally responsible, compared to those who come from collectivistic countries.

The study of G.E. Halkos regarding the waste culture and environmental efficiency supports the following idea suggesting that individualism is positively associated with the efficiency scores (Halkos, George & Tzeremes, 2011).

According to Hofstede, the «individualism/collectivism» dimension deals with the extent to which people are integrated into various groups. People in individualistic countries are expected to be bear responsibility for their life, decisions, behavior (Hofstede G. 2011). So that they do not expect others to take action in order to solve some problems or prevent some negative consequences, they do it on their own due to the high value of value individual initiative and freedom of expression. On the contrary, people from collectivistic countries tend to rely on the members of their group and are unlikely to make decisions on their own or make any changes.

Rohini Samarasinghe investigates also the impact of long-term orientation on environmentally responsible behavior. This dimension defines the focus of human efforts.

Therefore, as by Hofstede long-term oriented individuals believe that the most important events in their life will happen in the future. Such people are characterized by perseverance and thrift. According to Rohini Samarasinghe's findings, long-term oriented people tend to be more concerned about environmental problems and develop more responsible behavior (Samarasinghe R., 2012). Sushant Kumar, Vishlavath Giridhar and Dr. Pradip Sadarangani's research confirms the correlation between these two variables as well (Kumar, Sushant & Vishlavath, 2019). Thus, people who concerned about the future tend to care more about the environment they live in.

Hofstede associates masculinity with strength, competitiveness and assertiveness. People from masculine societies prefer hard beneficial work over a comfortable life. While studying the impact of cultural determinants on sustainable development which refers to the process of reevaluating values regarding the attitude toward the environment and natural resources for a better present and future Diana Tsoy and Gao Yongqiang revealed a positive effect of Masculinity on the latter (Tsoy D. & Yongqiang G., 2016). Consequently, people in masculine countries are expected to be more active and effective in environmental protection, compared to those who share feminine cultural values. At the same time, masculinity combined with short-term orientation can have the opposite effect on the environment if the country chooses economic prosperity over ecology. Husted stated that the pursuit of economic growth by masculine cultures may lead to a reduction of responsiveness to environmental problems with the aim to minimize the current expenses on more modern and eco-friendly technologies (Husted B.W., 2005). While L. Cox, B. A. Friedman and T. Tribunella considered the materialistic masculine values may have a negative impact on environmentally responsible behavior, they did not manage to find a significant relationship between the following variables (Cox P., Friedman B., Tribunella T., 2011).

Power distance as a cultural variable is considered to have a negative impact on environmentally responsible behavior. Husted argued that a high level of power distance contributes to a low social and institutional capacity for environmental sustainability (Husted, B.W. 2005). The concentration of power in one hands and the passivity of citizens lead to a low responsiveness to social issues, including environmental one.

Open dialogue with the authorities, that is crucial for solving the problem, is almost impossible within high power distance societies, because people are expected to do what was told, not to express their own opinion. As P. L. Cox, B. A. Friedman and T. Tribunella claimed, that in high power distance countries environmental the power holders in their own on the back of their focus mainly on the internal politics (Cox P., Friedman B., Tribunella T., 2011), can neglect protection.

In 2006, Yale Center for Environmental Law & Policy together with the Center for International Earth Science Information Network of Columbia University developed a metric that measures the environmental performance of different countries called EPI (Environmental Performance Index). EPI ranks 180 countries on 24 performance indicators across ten issue categories covering environmental health and ecosystem vitality as well as highlights the leaders, giving insight to their best practices. New Zealand has traditionally been among the leaders of the following ranking. The state scored 75.96 points in 2018 and reached the 17th place, having become one of the most environmental-friendly countries in the world.

New Zealand introduced various changes to its legislation as a response to climate change and has a substantial experience of protecting the environment. For instance, the country already has one of the highest shares of renewables in its energy mix. Renewable sources supply more than 80% of its electricity, and the government has a goal to increase this share to 90% by 2025. OECD Environmental performance review shows that the state has improved its environmental policy and shifted from direct financial support to a greater focus on information and partnerships (OECD, 2017). Moreover, the authorities are engaged in promoting eco-innovations across the country. Funding for environmental research accounts for nearly 10% of total government R&D expenses. It should be mentioned that New Zealand is also a world leader in the research aimed to reduce the environmental impact from agriculture. As a whole, the country is known to be a «good global citizen» owing to its protection of the environment.

As reported by the local Ministry for the Environment 75% of New Zealanders consider combatting climate change to be a personal responsibility of all citizens (Ministry for the Environment, 2018). People are confident that they can make a difference when it comes to environmental problems. In 2016 Hughey, Kerr and Cullen conducted a survey of people's perceptions of the state of the New Zealand environment and devoted a part of their research to the level of citizens' participation in environmental activities. The results indicated that almost 70% of survey respondents recycled household waste, bought products marketed as environmentally friendly, reduced or limited their use of electricity (Hughey K., Kerr G., Cullen R., 2016). At the same time most of the participants reported they were not active members of a club or a group that restores or protects the natural environment from damages. The following findings correspond with the New Zealanders level of Individualism. According to Hofstede Insights New Zealand scores 79 on this dimension and is considered to be an individualistic culture. Consequently, citizens are initiative as well as self-reliant people with a do-it-yourself spirit. They are ready to take responsibility for their own actions and do not rely on a group.

Thereby, high level of individualism tends to positively impact environmentally responsible behavior among New Zealanders.

As it has been already stated, New Zealand authorities promote the protection of the environment and designed a number of programs in order to respond to the climate change. Hughey, Kerr, and Cullen highlighted that those government efforts, aimed at improving air quality in the country, largely contributed to the long term downward trend in levels of emissions (Hughey K., Kerr G., Cullen R., 2016). Furthermore, the following research proves the power holders to be quite attentive and responsive to the citizens' requests and concerns, environmental one as well. In particular, the authorities organized a Land and Water Forum and introduced a National Policy Statement for Freshwater Management, combined with some other policy and regulatory changes to help deal with some of the concerns about freshwater and its management in New Zealand.

As we can see, high public and media interest forced the government to address existing environmental issues by undertaking several measures for solving them. The ability and willingness of citizens to influence their government policy and to be listened by the officials correspond with a level of power distance in New Zealand. As per Hofstede insights, New Zealand with a score of 22 on this cultural dimension has a rather

low level of power distance. Consequently, citizens are entitled to express their opinion regarding the different issues freely and to maintain direct communication with the authorities. Open dialogue with society allows officials to react promptly to existing problems and prevent future ones. Such a low level of power distance in the country helps to protect the environment much more effectively and faster.

Masculinity as well as individualism and low power distance positively influence environmentally responsible behavior in New Zealand. With a score of 58 the country is considered to be a masculine culture where people value strength, competitiveness and strive to be the best they can be. Though economic prosperity means a lot for the citizens, they are not willing to sacrifice ecology for it. According to Hughey, Kerr and Cullen research indicates that New Zealanders believe that growth in production and consumption, as well as an intensification of some activities, farming and urban development, in particular, are increasing pressures on the environment (Hughey K., Kerr G., Cullen R., 2016). New Zealanders' short-term orientation, on the contrary, sometimes tends to limit their efforts, aimed at protection of the environment. People tend to protect what remains but they are not always focused on prevention of the damage. Hughey, Kerr and Cullen stated that despite ongoing contentious issues with the forests including sustainable logging of indigenous forests, the emphasis is mostly on protecting what remains, especially from pests and weeds (Hughey K., Kerr G., Cullen R., 2016). Therefore, due to a lack of future orientation New Zealanders usually solve the problems instead of preventing them.

According to article of *Front. Psychol.*, (18 June 2019), pro-environmental values is essential both within urban and rural settings. In the United Kingdom for example, 40% of carbon emissions are attributed to household and transport behavior (Gatersleben et al., 2010; Fudge and Peters, 2011; Poortinga et al., 2012). Similarly, agricultural practices are major contributors to greenhouse gas emissions (Fleming and Vanclay, 2011). Yet, while people are beginning to acknowledge the need for behavior change in order to both mitigate and adapt to the effects of climate change, there appears to be an obvious lag in observing any real behavior change (Fudge and Peters, 2011; Ortega-Egea et al., 2014; Wynveen and Sutton, 2017). In the United Kingdom, Gatersleben et al. (2010) found that on the one hand, quite a number of people expressed both high levels of concern for climate change, but on the other hand, reported high levels of materialism, suggesting that people have not as yet articulated how they want to respond to the reality of climate change. That is, whilst shifting societal attitudes toward accepting climate as a major problem is critical for climate awareness and for changing behavior toward both mitigation and adaptation actions, behavior change has been slow. This may be because climate change is not necessarily seen as «interesting» even by highly engaged people (Howell, 2013).

It appears that having a positive attitude is important, believing that the climate has been changing over the previous 30 years, and having a stronger belief in human activities influencing the climate (Cook and Ma, 2014). Women are more likely than men to adopt pro-environmental values (Howell, 2013), and so are people in societies characterized by higher levels of trust, belief in internal control, and with higher levels of individualism and “looseness” (Tam and Chan, 2017). More recent thinking suggests that the decision

to adopt appropriate environmental behaviors will reflect some general psychological orientations, or values, that are culturally patterned (Tam and Chan, 2017).

Government in New Zealand created new Environmental Education for Sustainability Strategy refreshes the Government's approach across agencies to ensure they equip their young people with the understanding, skills and motivation they need to help address New Zealand's many environmental challenges. They encourage individuals, communities and organisations to think about the part they can play in creating a healthy environment and prosperous society in which we can all thrive.

Cultivating environmental values in New Zealand is making by this Strategy. Education has a critical role as it strengthens the ability of individuals and communities to positively influence the environment and society. Through informed choices, action and innovation, people can contribute to redesigning how we live and work – and New Zealand could lead the way in developing an economy that is based on sustainability and a thriving environment. Imagine growing generations of New Zealanders who understand environmental issues and actively contribute to a healthy and sustainable future for all.

They set common principles how they will go about achieving this vision – not only government agencies, but all of them with a shared role in environmental education: growing knowledge, skills and understanding; sharing values; taking collective action; thinking for the future; adopting a uniquely New Zealand perspective.

Cultivating values, fostering personal responsibility and citizenship through: emphasising care for biodiversity, land, fresh water, marine environment, air, atmosphere and climate, encouraging locally relevant, place-based experiences that develop the knowledge, attitudes and skills required to think and act sustainably, enabling transformative action and self-reflection for sustainability (Mahere Rautaki, July 2017).

Emphasising a vision for the future and life-long learning for all through: encouraging intergenerational learning, empowering young people to determine a sustainable future.

Developing social, cultural, economic and scientific understanding through: enhancing knowledge and mātauranga Māori relating to sustainability and environmental issues, acknowledging and respecting worldviews, problem-solving, critical thinking and systems thinking, making connections between social, cultural, economic and environmental systems.

Taking collective action through: encouraging community engagement and a sense of belonging, creating partnerships and collaborations for collective impact, encouraging better use of limited resources (Mahere Rautaki, July 2017).

Providing real-life contexts for learning about sustainability through: exploring local or national environmental issues, such as freshwater quality, Predator Free New Zealand or the impacts of climate change on island's nation, giving effect to the partnership between all peoples of New Zealand.

Conclusion. The present research highlights the correlation between some of the Hofstede's cultural dimensions and environmentally responsible behavior. Individualism, small power distance, masculinity and long-term orientation are proved to have a positive impact on the citizens' attitude to the environment they live in as well as on their willingness and readiness to protect it. A single cultural trait is unlikely to form a strong responsiveness to environmental problems in society, but a certain combination of

cultural variables can be a basis for responsible behavior and attentiveness to the ongoing issues with the ecology. Cultural peculiarities of New Zealand can partially explain the importance of environmental protection for the citizens of the country.

References

1. Daniel J. Sivek & Harold Hungerford (1990) Predictors of Responsible Behavior in Members of Three Wisconsin Conservation Organizations, *The Journal of Environmental Education*, 21:2, 35-40, DOI: 10.1080/00958964.1990.9941929
2. Gammoh, Bashar & Okoroafo, Sam & Koh, Anthony. (2019). Cultural Influences on Environmental Consciousness and Green Environmental Behavior. *International Journal of Marketing Studies*. 11. 20. 10.5539/ijms.v11n1p20.
3. Halkos, George & Tzeremes, Nickolaos. (2011). Towards a culture of environmental efficiency: An application of conditional partial nonparametric frontiers. *MPRA Paper* 28690
4. Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*, 2(1). <https://doi.org/10.9707/2307-0919.1014>
5. Hughey, K.F.D., Kerr, G.N. and Cullen, R. 2016. Public Perceptions of New Zealand's Environment: 2016. *EOS Ecology*, Christchurch. vi+82 pp. ISSN 2230-4967.
6. Husted, B.W. (2005). Culture and ecology: A cross-national study of the determinants of environmental sustainability. *Management International Review*, 45, 3, 349–372.
7. Ignatow, Gabe. (2006). Cultural Models of Nature and Society. *Environment and Behavior*. 38. 441-461. 10.1177/0013916505280791.
8. Kumar, Sushant & Vishlavath, Giridhar & Sadarangani, Pradip. (2019). A Cross-National Study of Environmental Performance and Culture: Implications of the Findings and Strategies. *Global Business Review*. 20. 10.1177/0972150919845260.
9. Milfont, Taciano & Duckitt, John & Cameron, Linda. (2006). A Cross-Cultural Study of Environmental Motive Concerns and Their Implications for Proenvironmental Behavior. *Environment and Behavior — ENVIRON BEHAV*. 38. 745–767. 10.1177/0013916505285933.
10. Ministry for the Environment. (2018). Environmental Attitudes Baseline. Colman Brunton. Retrieved from <https://www.mfe.govt.nz/sites/default/files/media/Extra%20downloads/Other%20documents/new-zealanders-environmental-attitudes.pdf>
11. New Zealand — Hofstede Insights. (2020). Retrieved from <https://www.hofstede-insights.com/country/new-zealand/>
12. OECD (2017), *OECD Environmental Performance Reviews: New Zealand 2017*, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264268203-en>
13. Pamela L. Cox, Barry A. Friedman, Thomas Tribunella, (2011) Relationships among Cultural Dimensions, National Gross Domestic Product, and Environmental Sustainability, *Journal of Applied Business and Economics*, Vol. 12, Iss. 6, pp. 46–56
14. Samarasinghe, Rohini. (2012). The Influence of Cultural Values and Environmental Attitudes on Green Consumer Behaviour. *International Journal of Behavioral Science*. Vol.7. 83–98.
14. Schultz, P. (2002). Environmental Attitudes and Behaviors Across Cultures. *Online Readings in Psychology and Culture*, 8(1). <https://doi.org/10.9707/2307-0919.1070>

- Stem, P. (1992). Psychological dimensions of global environmental change. *Annual Review of Psychology*, 43, 269–302.
15. Stern, Paul. (2000). Toward a Coherent Theory of Environmentally Significant Behavior. *Journal of Social Issues*. 56. 407-424. 10.1111/0022-4537.00175.
16. Tsoy, D. & Yongqiang, G. (2016). A Cross-National Study of the Relationships between Cultural Determinants, Sustainable Governance and Sustainable Development. *International Journal of Management Science and Business Administration*, 2(4), 28–43.
17. Yale Center for Environmental Law & Policy. (2019). 2018 Environmental Performance Index. Retrieved from <https://epi.envirocenter.yale.edu/downloads/epi2018policymakerssummaryv01.pdf>
18. Bostrom, A., Bohm, G., and O'Connor, R. E. (2013). Targeting and tailoring climate change communications. *Wiley Interdiscip. Rev. Clim. Change* 4, 447–455.
19. Chen, M. F. (2015). An examination of the value-belief-norm theory model in predicting pro-environmental behaviour in Taiwan. *Asian. J. Soc. Psychol.* 18, 145–151.
20. Cook, S. L., and Ma, Z. (2014). The interconnectedness between landowner knowledge, value, belief, attitude, and willingness to act: policy implications for carbon sequestration on private rangelands. *J. Environ Manag.* 134, 90–99.

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ENVIRONMENTAL EDUCATION IN GERMANY AND PROSPECTS FOR ITS APPLICATION IN UKRAINE

Abstract. *The scientific work considers the problems of ecological education — an indispensable condition for achieving a balanced, sustainable development of the state. The development of scientific basis for continuous ecological education includes: the gradual phased reformation of environmental education and the education of the individual based on scientific and spiritual principles; formation of ecological culture with a new environmental outlook; analysis of international relations and cooperation in the field of environmental education and science of environmental protection, rational use of natural resources, conservation of the biosphere and civilization; the solution of environmental problems in general, which involves the activities of environmental NGOs, and, as a consequence, the training of higher education graduates with a high level of environmental knowledge, environmental consciousness and culture.*

Анотація. *У статті досліджено проблеми екологічної освіти, як невід'ємної умови досягнення збалансованого, сталого розвитку держави.*

Розробка наукових основ неперервної екологічної освіти передбачає: поступове поетапне реформування екологічної освіти та виховання особистості на наукових і духовних принципах; формування екологічної культури новим екологічним світоглядом; аналізу міжнародних зв'язків і співробітництва у галузі екологічної освіти і науки охорони довкілля, раціонального використання природних ресурсів, збереження біосфери і цивілізації; розв'язання екологічних проблем в цілому, що передбачає діяльність громадських організацій природоохоронного спрямування, та як наслідок підготовку здобувачів вищої освіти з високим рівнем екологічних знань, екологічної свідомості і культури.

Keywords: *education, ecological education, ecological competence, ecological policy, environmental impacts, environmental culture.*