

Analysis of state documents on environmental awareness aspects in Kazakhstan

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Abstract

Environmental awareness issues in Kazakhstan are one of the most undermined topics both among the public community and in terms of state rhetoric. In the context of official state documents, so far only two official environmental codes and a national program called Zhasyl Kazakhstan were introduced in the country in 2021. In this regard, the main goal of this paper is to analyze critically the main content of the Environmental Code and the Zhasyl Kazakhstan Program, with a particular focus on sections related to environmental awareness-raising aspects. This paper applied subjective-based content analysis to identify interesting insights on regulatory legal aspects, future research streams, and uncovering of improved legislative frameworks in the context of an environmental awareness issue. Apart from that, five open-ended questions were sent out to the Ministry of Ecology, Geology, and Natural Resources to obtain primary data on the state's view regarding current previous, recent, and future aspects of environmental awareness issues in the country.

Keywords: Environmental awareness, Environmental code, Zhasyl Kazakhstan;

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1. Introduction

Environmental awareness-raising programs, campaigns, and projects all around the world are important initiatives aimed to promote awareness for the protection of the natural environment and the dissemination of pro-environmental information to the public community [1–4]. Such initiatives may include the cultivation of pro-environmental knowledge and values among pupils at different school levels within the framework of ecological education [5-8]; the training and retraining of ecological specialists and teachers [9, 10]; or the launch of specific projects developed by local and international civil society organizations [11–14]. One of the commonly discussed solutions among scholars on how to more effectively address low environmental issues was the strong support for environmental education processes [15]. Here, environmental education is the attempt to re-educate the public to gain, cultivate and develop pro-environmental competences, theoretical knowledge, and practical skills [16, 17]. Thus, an environmentally aware population can be beneficial for the public community as people become over time better-informed citizens on environmental issues and can continuously cultivate pro-environmental aspects that can be passed on to the next generation of humans [18–20].

In the case of Kazakhstan, it is a post-soviet state located in Central Asia, environmental awareness-raising aspects have gained a lot of attention from the government and civil society organizations, especially considering it within the last several years and the introduction of the new Environmental Code and the launch of the Zhasyl Kazakhstan national program. Since the early years of independence, the country has struggled with dozens of environmental problems ranging from air and water pollution to waste management as well as radiation issues, which have been highlighted by numerous local and international scholars. For that, several awareness-raising initiatives from the government and civil society organizations were introduced to address the issue of low awareness levels of environmental problems. For instance, in terms of government initiatives, these included the provision of ecological education to preschool and secondary schools or the introduction of academic courses for future ecologists at the University level.

Among civil society organizations, here early approaches have focused on financing and supporting ecological education processes, particularly through the SPARE Program or GLOBE Program by the United Nations (UN); the formation of local environmental associations and organizations; launch of pro-ecological forums and formation of environmental information basis for different population groups. As of nowadays, more than 53 environmental civil society organizations are active in the country and several environmental awareness campaigns have already been implemented, most notably under the initiatives of civil society organizations such as the UNDP, and the government through the nationwide state program “Zhasyl Kazakhstan”.

1.1. Purpose of study

The study aims to evaluate through a content analysis two official Kazakhstani documents: one national program “Zhasyl Kazakhstan” and the “New Environmental Code”. Such a content analysis could share valuable insights into the details of how the state understands, views, and possibly deals with the modern environmental issues in Kazakhstan. Moreover, content analysis is very helpful in unpacking the hidden content elements of the document which would allow scholars to analyze it thoroughly to identify new research gaps and compare it to the previous old-dated versions. Besides that, this paper also provided first-hand primary data on the state’s point of view regarding environmental awareness aspects in Kazakhstan. The results of our content analysis of two official documents and insight into the state’s point of view towards environmental awareness aspects in Kazakhstan could help not only on the one hand scholars to identify new research streams and state

directions concerning environmental awareness aspects, but also provide valuable critical feedback on the content of these two official documents from both a practical and theoretical viewpoint.

This paper has two research objectives. First, to unpack the content of two official documents that touch on aspects of environmental awareness and analyze critically their main content and aspects related to environmental awareness. Second, to provide clear-cut primary data on the views of the Ministry of Ecology, Geology, and Natural Resources about the state and aspects of environmental awareness issues in Kazakhstan.

1.2. Conceptual background

1.2.1. Environmental issues in Kazakhstan

The Republic of Kazakhstan has been plagued for many years with serious environmental problems ranging from air pollution matters to problems related to waste management aspects. Among the most serious environmental problems according to Alimbaev *et al.* [21] are environmental issues related to the state of air, water pollution, and water resource shortage. This has especially been exacerbated due to the growth of the country's economy, among them related to the aspects such as industrial growth of production of coal, non-ferrous and ferrous metallurgy; high level of urbanization, and growth of transport routes [21]. For instance, according to the book "Zavtra Bylo Pozdno: Ekologicheskie Riski Kazachstana [Yesterday was too late: Ecological risks of Kazakhstan]", in terms of water resource deficiency problem, one of the main factors for this particular issue to occur are the irrational use of water resources for agricultural use [22]. In terms of air pollution, numerous cities are especially suffering from this particular problem. For instance, these include cities such as Temirtau, Karaganda, Saran, Shakhtinsk, Almaty, and Balkhash [21]. While the city of Karaganda is known for its coal industrial complexes, Temirtau is known for harboring chemical and metallurgical industries [21].

The release of harmful chemical substances from industrial companies has all been highlighted by various local scholars, such as Shakhova *et al.* [23], Aiman *et al.* [24], Alimbaev *et al.* [25] or Assanov *et al.* [26]. Other more famously known environmental issues that are worth pointing out are issues related to water pollution and water resource shortages, where the latter is especially quite concerning among Central Asian states. Besides the historically known water pollution problems related to the Aral Sea and the Caspian Sea, water resource shortage concerns due to unregulated water use, huge water discharges, or intensive water use by industrial and agricultural companies are also considered one of the main environmental problems in the country as well as the for entire Central Asian region [21]. It is worth highlighting that Kazakhstan is a developing state that had to drastically transition from a state-planned economy to a market economic system in the early 1990s, the overall growth of its economy and the increase of industrial production had negatively impacted the local environment and even made some environmental problems worse than before [21]. Thus, it is fair to say that on the one hand, the country had no choice but to accept fate and immerse itself fully into developing its economy and industrial growth in the early 1990s, while sacrificing its environmental state.

Several research papers have addressed and discussed environmental problems in Kazakhstan in detail in their research articles. Over the many years since Kazakhstan gained its independence, numerous local Kazakhstani and international scholars have analyzed environmental problems in Kazakhstan from various angles, such as water pollution aspects [27–32]; waste management issues [33–39]; air pollution [40–46]; Aral Sea issue [47–53]; health effects by radioactive waste [44–61]; soil and land degradation issues [62–68]; and issues related to ecosystem and biodiversity [69–74]. Thus, plenty of research has been done in terms of analysis of different ecological problems in the country. For instance, while Ryabushkina *et al.* [71] have evaluated the problems concerning the study and conservation of flora biodiversity in the country, other research articles such as those written by

Kenessary *et al.* [46] or Kenessariyev *et al.* [42] assessed the impacts of air pollution levels to the health of the population.

Nowadays, many local as well as international researchers encourage the country of Kazakhstan to keep implementing sustainable development policies and follow their subsequent pro-environmental approaches that would allow the country to restore the damage that was done to the environment, human population, and the natural system [21]. At the same time, the sustainable development process itself would also positively influence the social transition among the Kazakhstani society to become more environmentally aware of ecological issues in their home-country as well as globally via supporting ecological education process, with which they could catalyze new legislative changes and implement public policies that would reinforce pro-environmental policies in aspects related to natural resources, techno-economic advancements, and socio-cultural matters [21].

1.2.2. Environmental Awareness

1.2.2.1. Definition and Research Scope

Environmental awareness has been studied and defined by many scholars throughout many years, with its conceptual origin, according to Kokkinen [75], having emerged back in the early 1970s in the USA after environmental activist movements started to gradually grow into a serious wave of national movements of ecological activists. In terms of definition, environmental awareness can be viewed as a social concept with an abstract conceptualization [75]. According to Kokkinen [75], environmental awareness can be defined as the “state of a person’s awareness” of the environment and problems related to them. Other scholars have defined it differently by stating that it is conceptualized as a social concept depicting the attitude and perception of an individual towards the environment [76]. However, some others such as Handoyo *et al.* [77] provided a more comprehensive definition by explaining environmental awareness as an aggregate state of a person’s perception of the environment consisting of various pro-environmental elements such as knowledge, inner values, and behavior. Here, environmental awareness is made up of aggregate pro-environmental elements [77].

Research-wise, the scope of its research varies from study to study. For instance, as of now, there are plenty of studies on corporate environmental awareness [78–80]; studies of environmental awareness in the context of ecological education [81–83], and environmental protection aspects [84–87]. Other prominent studies also included the effects of social media and traditional media on environmental awareness levels [88–94] and sustainable development practices [95–99]. Thus, it is fair to say that the scope of the research area that the study on environmental awareness touches is extensive and stretches wide out to aspects of business, media, public policy, and education.

1.2.2.2. Research Progress in Kazakhstan

In terms of research progress in environmental awareness studies, there are numerous research articles published on this particular topic in the context of Kazakhstan. For instance, these included studies were done by Zhurtbay [100] and Tursynbayeva *et al.* [101] on the inter-related aspects of how the media and national policy form environmental awareness elements among different groups of the population in the country. Another group of scholars approached it from the context of ecological education and how the process of pedagogical teaching affected the level of awareness among different groups of young people [102–107], while other researchers looked at the degree of awareness levels for various environmental problems ranging from the role of NGOs and civic society organizations [108–112], and from the point of view of access to environmental information to the public community [113]. However, most recent studies included multiple environmental awareness aspects that focused on ecological issues such as waste management problems and air pollution, such scholars include those by Karimova *et al.* [114], Karaca *et al.* [115], and Sarbassov *et al.* [116].

Another popularly emerging topic about environmental awareness concerns the aspects of the environmental activism movement and the role of activists [117, 118]. The most recent relevant studies were done by Kumar [119, 120], who provided in one of the papers an extensive literature review on 82 environmental awareness studies in Kazakhstan [119], while on the other a new conceptual framework to assess ecological awareness level consisting of four main dimensions were provided [120]. The author found the following literature review findings. First, the paper revealed that 44% of studies related to the topic of environmental awareness were written in the Russian language, while only 22% were in Kazakh and 34% in English [119]. Second, the study also found that the number of publications has increased from one publication between 1991 and 1999 to more than seventy-five publications within the last twenty years [119].

Last but not the least, the literature review analysis also has revealed that most papers (48.8%) focused on aspects of environmental education followed by studies on aspects concerning ecological-environmental culture and case studies [119]. In the case of the second paper by Kumar [120], the particular paper focused on addressing the issue of a lack of a multi-dimensional conceptual framework for assessing ecological awareness levels. According to the author, the level of ecological awareness consists of four main dimensions: affective, altruistic, conative, and cognitive [120]. To assess each dimension, the author proposed three different research instruments, which were previously applied by different Western scholars. These included the 15-item EEV Scale Model; the 26-item Environmental Risk Perception Scale Model; and the 18-item EAS Model [120]. Such a new multi-dimensional conceptual framework could help both local Kazakhstani researchers as well as different researchers all around the world to pinpoint differences in environmental beliefs, values, concerns, and perceptions about different population groups in a given context [120].

1.2.2.3. Evolution of State and NGO projects

Since Kazakhstan gained its independence, there were several attempts carried out in terms of government and non-government programs that aimed to raise the level of environmental awareness in the country. One of the earliest government-initiated programs included the efforts in providing environmental education among preschool kids, secondary education students, and students studying at higher educational institutions [121]. This was first laid out in the Resolution of the eleventh session of the Intergovernmental Environmental Council of CIS, which later was implemented in the Environmental Education Program through the resolution № 207/p of the Ministry of Natural Resources and Environmental Protection in 1998 [121]. The Environmental Education Program was then also gradually incorporated in the Government Action Plan of the Concept of Environmental Safety of the Republic of Kazakhstan in 1998 [121]; within the 2002 Concept of Ecological Education [122] as well as in the 2030 Strategy in the section on *Environment and Natural Resources* [121]. However, only in 2002, the government recognized the importance to integrate elements of environmental education and sustainable development aspects into the educational system and started to actively implement the programs [122].

In terms of preschool and primary education, the first government attempts focused on building an ecological mindset among children, for which teachers were first trained in courses such as environmental protection and preschool children send on an excursion to recreation centers outside urban cities for them to experience the natural world [121]. Besides that, the aim for preschool children was to indoctrinate into their mindset a holistic picture of the natural world [122]. Moreover, a preschool curriculum on environmental education was introduced that focused on providing lessons to children on *"Getting to know the world around us,"* where children could acquire knowledge on the difference between animate and inanimate nature as well as understand how plants functioned [121].

Despite all these efforts, little is known about other government projects for preschool children and often this age group is not given as much attention as it is supposed to be provided [121].

In the case of secondary schools and higher educational institutions, here the situation in terms of state support is specialized and more course oriented [121]. For instance, among secondary school students, courses such as Botany, Ecology, Zoology, and Natural History have been introduced [121]. It should be noted that most public schools provided one subject called Natural Science that incorporated all environmental aspects [122]. Hence, such specialized courses were only provided among specialized schools or lyceums, which accounted for about 5% of all schools in Kazakhstan [121]. For students at higher educational institutions, training for teachers and courses for students were offered [121, 122]. As of nowadays, around 45 higher education institutions prepare specialists in environmental studies or ecology [122]. However, its main issues have included the problem of matching graduates with the demand of the labor market, as often ecologists and environmental science specialists face labor shortage problems [121, 122].

Other environmental awareness programs or projects were also prevalent among civil society organizations, such as the UNDP in the form of financing ecological education processes. In the beginning, in the early 1990s, NGOs worked on the formation of local clubs and environmental societies. One such early local environmental organization formed by local ecologists was the so-called Karaganda Edelweiss [121]. Because civil society organizations and non-governmental organizations (NGOs) had seen a huge growth in their impact on the society in late years of the 1990s and have now become an important pillar for driving the development of ecological education in the country forward, it is fair to say that their share of influence was crucial on par with the public sector. For instance, back in 1998, a group of NGO experts from Kyrgyzstan and Kazakhstan was allowed to visit the Netherlands to obtain some form of firsthand experience via seminars and lectures on the process of ecological education and their pertaining activities [121].

Being financed by a Dutch NGO in the project called Ecological Education and Sustainable Development, the experts were able to produce a methodological manual or guidance book about ecological education [121]. Other international projects also included the so-called SPARE Program financed by the Norwegian Society for Nature Conservancy in 2001 that aimed at teaching Kazakhstani students and teachers aspects of energy and resource-saving technology; or the UN-financed GLOBE Program from the early to late years of the 1990s to support ecological volunteer activists from more than 100 schools from Kazakhstan and Kyrgyzstan by bringing them closer to the activities of the NGOs [121].

Other small-scale projects were also carried out by local civil society organizations. For instance, these included the online publication of environmental-biological magazines for children named “EcoWeek” or “Temirkazyk” 6 times annually in both languages of Russian and Kazakhstan to motivate children to read about technological advancement in the niches of sustainable development and environmental science [122]. Another local project organized by National Educational and Health Centre “Baldauren” have launched 2015 a forum for young environmentalists on “Save the Green Planet” and 2016 another forum for young environmental researchers “Focus on Eco-World” [122]. On top of that, online environmental contests on raising awareness for environmental problems in the country were also organized by local civil society organizations and international organizations, such as the UNDP in June 2021 among Kazakhstani media journalists on the topic “Change for Climate in Kazakhstan” [123]. Nowadays, there are numerous local environmental organizations and clubs in Kazakhstan that engage in activities related to raising environmental awareness or environmental education processes, most notably ECOJER, a Kazakh association of regional environmental initiatives that assist business, government, and civil society projects that are involved in environmental protection efforts. According

to the UNECE report from 2018, around 53 environment-related organizations operate in Kazakhstan [122].

2. Materials and Methods

2.1. Data collection instrument

Besides the analysis of secondary data from official documents, this research also obtained primary data about the state's point of view on the issue of environmental awareness in Kazakhstan. For that, five open-ended questions were prepared and sent out specifically to the corporate email of the Ministry of Ecology, Geology, and Natural Resources. The questions were sent out in early December 2021 and written answers were received in late December of the same year. Written responses were received in the form of a word file. The list of the six open-ended questions is provided in Table 1 below.

TABLE 1. Open-ended expert questionnaires

Question 1	From a government's point of view, why do you think there is a problem with a low level of ecological awareness in Kazakhstani society? Please list at least three reasons.
Question 2	Has the problem of environmental awareness among the population improved since the early 1990s and early 2000s? How could the improvement be explained?
Question 3	What specific environmental issues will be the most crucial ones to address in the future within the next five to ten years in the context of Kazakhstan, and why?
Question 4	What is the role of civil society organizations in environmental education projects in Kazakhstan? How will its role change in the future: will it become more or less important? More importantly, why exactly?
Question 5	How important are civil society and international organizations in addressing the problem of low environmental awareness in Kazakhstan?

2.2. Participants

The participants consisted of officials at the Ministry of Ecology, Geology, and Natural Resources, where ecological experts provided their written responses.

2.3. Data Analysis

This paper uses a content analysis method to thoroughly analyze two official documents, namely the government-initiated national program called "Zhasyl Kazakhstan" and on the other side the newly introduced New Environmental Code of the Republic of Kazakhstan from 2021. Content analysis is a method of analysis of written or recorded documents or materials [124]. In other words, researchers analyze the content of the data, which in this case would be two official documents, and give an interpretation of them based on the subjective understanding of the content [124].

3. Results

3.1. Zhasyl Kazakhstan Program

Since mid-2021, a new government program called Zhasyl Kazakhstan has been adopted and implemented, where the word "Zhasyl" stands for "Green" in English [125]. This program was adopted

on October 12, 2021, and has been given an implementation period from 2021 to 2025 [125]. The entire volume of its finances for the implementation period was estimated to be around \$5.829 million, or 2.5 billion tenge in local currency [125]. Its main stakeholders included six ministries (namely Ministry of Ecology, Geology, and Natural Resources; Ministry of Information and Social Development; Ministry of Education and Science; Ministry of Investment and Development; Ministry of Healthcare; Ministry of Energy) and many other government-affiliated enterprises and JSC such as Kazakhmys Smelting, Astana Recycling Plant, Kazecotech, Clean City NC, ArcelorMittal Temirtau or Samruk Energo [125]. However, the main supervisor and responsible government body for this program are the Ministry of Ecology, Geology, and Natural Resources [125].

The main goal of this program is to create a favorable living environment for the population and improve the environmental situation in the country [125]. According to the content of the national program, it consists of four different pillars of strategic paths: Clean Kazakhstan; Economically Efficient Kazakhstan; Nature Kazakhstan; and Ecological Future Kazakhstan [125]. These four strategic paths include government efforts directed towards the improvement of the quality of atmospheric air; efficient management of waste production and use of water resources; support for conservation of ecosystems in lakes such as Balkhash and the North Aral Sea region; reinforcing local environmental policies in safeguarding biological diversity of rare plants and endangered species of animals; introducing specially protected natural areas and green projects; promotion of renewable energy projects and eco-friendly innovations and start-ups; modernization of public consciousness for environmental issues through environmental education and nurturing an ecological-friendly culture [125].

By 2025, the government expects to reach from this program the following long-term objectives. First, a decrease in the volume of wastewater discharges as well as a decrease in the level of energy intensity based on consumption per unit of GDP [125, 126]. Another expected positive outcome concerns the greening projects of cities and the creation of an interactive online geoportal map that would allow the public community to be able to monitor on the one side the effective planting of 2 billion trees, while on the other side check the risk factors of forest fire tendencies and illegal logging activities [126]. Besides that, the program expects to see a decrease in air pollution levels among the following ten cities: Temirtau, Nur-Sultan, Almaty, Aktobe, Atyrau, Ust-Kamenogorsk, Karaganda, Balkhash, Zhezkazgan, and Shymkent [125, 126]. Furthermore, in terms of water security and water resource management aspects, the President has also assigned the government to update the legislative framework on water use and conservation aspects by introducing a new Water Code by 2022, which would support the Zhasyl Kazakhstan Program even more [127]. As the older Water Code did not include legislative regulations on aspects of the preservation of water resources and its rational use, the new upcoming Water Code will provide more concrete and specific legal amendments [127].

In regard to environmental awareness aspects, the focus on modernization of the public community to become more environmentally aware is considered one of the long-term goals of this government program and is the fourth pillar of the national document. It consists of three main long-term objectives. First, the integration of environmental awareness aspects into the education system and the modernization of the quality of education [125]. Second, the formation of an eco-oriented informational basis in Kazakhstan [125]. And third, training, retraining, and provision of education for future ecologists [125]. According to the main goal of this fourth pillar, all these three objectives should eventually cultivate values of ecological patriotism among different groups of the population [125].

Regarding the first long-term objective to effectively integrate environmental aspects into the education system in the country, the program has outlined two indicators that would effectively help to achieve the goal. The first indicator concerned the coverage of students with the course on “Ecology” in

secondary school programs, which would involve students starting from grade six up until graduation from high school [125]. And the second indicator would be regarding aspects of ensuring students have access to the best green practices and technologies [125]. These two indicators would be measured according to three government-initiated programs: (1) creation of networks of environmental education centers around Kazakhstan. For example, this would include the building of specific eco-stations; (2) the Introduction of a new elective course "Ecology" in the 6th-grade curriculum of a secondary school; (3) Holding annually a national competition on "*The best organization of eco-education*" [125].

The second long-term objective concerned the formation of an eco-oriented informational basis in Kazakhstan, here the indicator would involve several citizens covered by the environmental information campaign, for which two government programs are going to be introduced: (1) Development and implementation of a media plan for environmental education and awareness through publications in traditional and new media, holding action events at the local and national level; and (2) conducting on a systematic basis the environmental government campaign '*Birge-taza Qazaqstan*' (transl. *Together-Clean Kazakhstan*) to strengthen environmental values [125]. Unfortunately, specific information or details regarding the third long-term objective involving the retraining and training process of future ecologists, no information had yet been provided.

It is worth highlighting the fact that this national program has put more emphasis on the first three strategic pillars of Clean Kazakhstan, Economically Efficient Kazakhstan, and Nature Kazakhstan. According to the official document, in the strategic pillar regarding Clean Kazakhstan, three specific long-term goals were highlighted in detail with each of them having specific short-term objectives and their respective programs. Here, detailed program information was provided, with one of the many long-term goals of this pillar involving the reduction of emissions of pollutants into the atmosphere from stationary sources in large cities by industrial enterprises from 881,6 thousand tons to 503,4 thousand tons by 2025 [125]. These would directly concern enterprises such as JSC ArcelorMittal in Temirtau; JSC Astana Energy in Nur-Sultan; JSC Almaty Power Station in Almaty; LLP PKOP in Shymkent; for enterprises in Aktobe; one in Atyrau; two in Ust-Kamenogorsk; and five others in four additional cities [125].

Another goal for this pillar concerned the management of waste production and consumption, for which the document described in detail the specific government actions needed to address this particular issue. For instance, one of the government-initiated programs to achieve sustainable waste management processes in different cities is via the purchase and installation of containers for separate collection of waste; creation of landfill areas, particularly in the Pavlodar region, for the collection of construction and bulky waste generated by legal entities and the population to further processing and disposal purposes; construction of a hazardous medical waste disposal center in Nur-Sultan; recycling of previously accumulated phosphogypsum waste in the Zhambyl region; and more than dozen other specific government actions [125]. This shows that the Zhasyl Kazakhstan Program tries to solve more pragmatic environmental problems surrounding air and water pollution aspects, waste management issues, and aspects related to environmental control and putting less emphasis on raising environmental awareness. However, ecological education and the formation of a pro-environmental culture take time and a lot of effort to see fruitful results, and this program had set at least some tasks for the next three years. Hopefully, it can be expected that this document will be updated and revised in the future to publish a more detailed and comprehensive report, especially concerning aspects of environmental awareness issues and government programs.

3.2. New Environmental Code

The new and updated version of the Environmental Code of the Republic of Kazakhstan was adopted on January 2, 2021, which replaced the previous 2007 version [126]. This new Environmental Code brought in a new wave of legal updates, as according to the recommendations provided by the OECD, the

legislative frameworks were outdated and several new provisions need to be added [128, 129]. According to, Eldos Abakhanov, who is the Deputy Chairperson of the Kazakhstan Association of Environmental Organizations, such new legislative reforms were introduced to bring in the best practical experiences from the European Union and OECD countries, which could eventually optimize the strength of the outdated environmental regulations in the country and bring in line with the OECD's approach criteria's [130]. Another local expert from Grata International also highlighted the fact that the new Environmental Code has tried to introduce positive experiences from EU countries and improve legislative aspects, particularly previous shortcomings regarding ineffective environmental impact assessment; irrelevant legal regulations on waste management issues; weak public participation mechanisms in environmental control; and systemic evaluation of environmental damage [129]. As a result, several new legal provisions were added.

For instance, these included the introduction of legal principles concerning the responsibility for restoring the damage caused to the environment and new definitions regarding polluters and their classification into different categories depending on the level of hazardous impact of their entrepreneurial activities on the environment [128, 129]. One of such specific new novelties included the introduction of the principle "polluters pay," which once again was re-integrated from the experiences of the OECD countries and implied the introduction of high fees to enterprises for environmental damages caused [130]. Such new legal reforms, according to Eldos Abakhanov, also brought in new legal pathways on how to effectively reorient environmental revenues generated from issuing environmental permits and fees from violations of environmental emissions toward the state and local budget [130].

Another interesting legal novelty included the adoption of a new regulatory framework for assessing the environmental impacts of enterprises as well as the introduction of a new waste classification that corresponded to the European catalog [128]. For instance, the new waste management classification aimed to tackle issues related to the reduction of waste generation; reuse of waste; recycling process of waste; and aspects related to landfill disposal matters [128]. Here, the introduction of an environmental impact assessment method also ensured that enterprises were subject to compliance measures and check-ups before they could be granted environmental permits [130]. Here, environmental impact assessment methods included the following types of impact measurements: direct, impacts, indirect impacts, and cumulative impacts [130]. Besides that, Makhmetova [129] also noted that the violators in terms of waste management aspects were also subject to severe administrative fines, penalties, and liabilities.

Besides that, other significant legal changes were made concerning new environmental aspects related to the legal introduction of protection of forests; protection of soils; environmental education and awareness raising aspects; research and development; management of radioactive waste; and water security aspects in the northern part of the Caspian Sea [128]. These new legal changes in the New Environmental Code also brought in changes within the Code of Administrative Offences, as amendments were carried out to tighten liability for violation of laws related to tax code, criminal code, forestry code, water code, land code, and entrepreneurial code, the law on the development of agro-industrial complex and rural areas, and several others [128]. Moreover, it is worth noting that new concepts on how to calculate environmental damage; the introduction of a new methodological assessment system of cross-border impacts aimed to align with the standards of the 1991 Convention on Environmental Impact Assessment in a Cross-Border Context; and a new method of assessing administrative fines for polluting enterprises [128, 129].

In terms of environmental awareness aspects, which were stipulated in Articles 191-194, new significant legal changes were introduced. First, in terms of how the state now provided support for

ecological education to different population groups and how environmental information became publicly accessible [128]. In comparison to the older 2007 version of the Environmental Code, where in Article 184 the state support measures were provided with very few specificities [131], the newer version highlighted the importance of public participation in the discussion of public awareness of environmental issues and public access to environmental information. For instance, in Article 194 on “state support for environmental education and awareness,” the state now supported newly introduced “training for climate change adaptation specialists” and was obliged to “inform the public about projected anthropogenic impacts, climate change, human and environmental vulnerability, and climate change adaptation measures” [128]. Speaking of public participation, particularly on how the public could voice their opinions and hold public hearings, the new Code strengthened the role of the public in decision-making processes [130]. Here, with the new amendments public hearings will be now covered in mass media; all stages of the environmental impact assessment procedures be posted on the official websites of the Ministry; and the post-project analysis reports will ensure high-quality standards of project development [130]. These aspects regarding improved public participation processes were particularly well highlighted by Makhmetova [129], where the local expert outlined in detail the scope of the environmental impact assessment procedures.

Other new state support measures for raising public awareness of environmental issues also have included granting so-called “state contracts” and “social contracts” to support innovative methodological practices in fields of environmental education by non-profit organizations [128]. Speaking of the environmental education process, the new Environmental Code also introduced a new academic discipline on “environmental protection and use of natural resources” as a state-compulsory educational curriculum for specialized vocational education [128].

It is also worth noting that the new Environmental Code also has introduced more precise classification on what the state had to do in terms of tackling the issue of public access to environmental information and how the public now was able to exercise environmental control [128]. While the previous 2007 version did not stipulate the significance of public disclosure of environmental information at all, the new version outlined the state to be disclosing environmental information specifically related to ambient air, waste management aspects, energy balance issues, biodiversity problem, state of water and land resources, and climate change issues [128].

Besides that, the new Environmental Code also introduced some new changes and amendments in terms of the main directions of environmental research. The newer version introduced new concepts and research focus such as natural ecosystems; preservation of biodiversity; climate change impact and mitigation; analysis of the environmental impact on public health; environmental safety; determination of zonal threshold levels of man-made impacts on ecosystems and landscapes; and many other niche areas [128].

Thus, it can be concluded that the new Environmental Code has indeed significantly addressed previous shortcomings of the 2007 version in aspects regarding low efficiency of environmental impact assessment; irrelevance of legislative regulation of waste issues; limited public and citizen participation in terms of environmental control and environmental awareness; and non-existent methodological economic assessment system of environmental damage. This has also been outlined in detail by both local ecological experts Eldos Abakhanov [130] and Leila Makhmetova [129].

3.3. UNDP's Joint Project

Besides these two official documents related to environmental awareness aspects, civil society organizations such as the UNDP in cooperation with the Ministry of Education and Science, Ministry of Ecology, Geology and Natural Resources, and JSC International Green Technologies and Investment

projects Center have also launched since 2020 a 4-year program called 'Enabling innovative ecological education towards the country's sustainable development' to teach more than six thousand teachers on aspects of environmental education and build a network of ecologists, activists, students, teachers, and parents to effectively delivery an informational campaign about the issue on low environmental awareness among the public [132].

This joint project has also aimed to support pre-school educational institutions by initiating interactive games and cultivating via lessons an eco-friendlier society [132]. This should nurture an environment where pre-school and elementary students would gain knowledge on aspects of sustainable development, biodiversity conservation, climate change, and sustainable consumption [132]. The ultimate goal of this project is to build upon the legal framework for incorporating in the future a new subject on climate change in the Kazakhstani educational system [132].

3.4. State's View on Environmental Awareness Problem

According to the five open-ended questions that were sent to the ecological experts at the Ministry of Ecology, geology, and Natural Resources, their point of view was summarized in the following way:

First, concerning the reasons why currently a low level of environmental awareness exists among the general population, the Ministry provided their responses in the following manner. According to the Ministry of Ecology, Geology, and Natural Resources, the issue with the low level of environmental awareness is primarily caused as a result of several factors. One of the factors included the *"low level of a human culture driven by immoral, irrational and consumerist attitude and behavior."* Another factor was the issue with the *"lack of public knowledge on environmental education."* As a result, the *"Kazakhstani society with its consumerist culture lacks a comprehension and understanding in the symbiotic relationship between animate and inanimate nature"*.

Second, when asked whether the government did indeed view an improvement in the levels of environmental awareness since the early 1990s and 2000s, their response was straightforward and to the point. According to their response, the country has indeed experienced an improvement in the level of environmental awareness among the general population, particularly as a result of the young population being influenced by the principle of *"global ecologization,"* technological advancements, and the emergence of the Internet with social media.

Third, when asked about the most critically crucial environmental problems that needed to be tackled shortly, three main environmental problems were pointed out. First, the problem of air pollution was pinpointed. According to the experts, the adoption of a new Environmental Code with the Zhasyl Kazakhstan Program should tackle this particular environmental problem more effectively, especially in cities such as Almaty, Karaganda, and Temirtau. The second issue that was given attention by the experts was concerning the waste management problem. And third, the aspect concerning the climate change issue was mentioned. According to the response, the Central Asian region is the most prone region to global climate change and rising global temperatures. It is mentioned that *"The availability of water resources is critical. Nearly half of all water comes from outside. Thus, all climatic changes will affect the availability of water. These eco-problems have not lost their relevance yet."*

The fourth and fifth questions asked experts about the current and future roles of the civil society organizations in Kazakhstan and their effectiveness and impacts on raising environmental awareness levels among the general population. Here, experts provided the following responses: *"To begin with, let me make it clear that drawing attention to environmental issues and stimulating environmental activity is the task not only of environmental organizations but of everyone, including the citizens themselves, businesses, industrial enterprises, and of course the government. The involvement and active participation of civil society play key roles in solving environmental problems. In recent years,*

the Civil Forum has become a stable dialogue platform for discussing the most important and pressing socially significant issues. It was noted that in recent years the topic of ecology has been actively raised by ordinary citizens who are not indifferent to the topic of clean air and environmental protection. In addition, civil society organizations, which are important subjects of the public community, play an important role in the formation of the ecological information space and would keep playing a crucial role in the future in the context of Kazakhstan. It should be noted that civil society organizations proceed in their activities from priorities determined by their own philanthropic goals, and not from functions or responsibilities established from outside. Therefore, their attention is often focused on specific environmental problems, and, as a rule, the problems are supposed to be actual and most stressing ones, representing a greater public interest. Nowadays, the government's main focuses are mostly directed toward improving the environmental situation in cities of Kazakhstan, reforming environmental legislation, pursuing a gradual transition to a green economy, and building an informational basis for the public to access crucial environmental aspects."

4. Discussion

In a nutshell, our content analysis has shown the following interesting findings. First and foremost, in terms of the Zhasyl Kazakhstan Program that has been introduced and implemented in 2021 for a 4-year program up until 2025 with a financial worth of 2.5 billion tenges, consists of four strategic pillars with one of them specifically designed to support state policy measures in raising environmental awareness of the public community. This particular pillar was named "Ecological Future Kazakhstan" and has outlined three specific policy directions: (1) integrate environmental awareness into the Kazakhstani educational system; (2) support state measures to improve informational basis on environmental awareness aspects; (3) and the process of training and retraining of specialists and teachers of ecology. Each policy direction had its indicators and programs. For instance, in the first policy direction, one of the programs included the introduction of a course on "Ecology" among secondary school students. The second policy direction is so-called environmental information campaigns through media events, publication competitions, and the implementation of the so-called "*Birge-taza Qazaqstan*" project. Finally, in terms of the third policy direction, projects, and programs were still underway.

In terms of the new Environmental Code, there were several interesting insights drawn from our content analysis of the document. First, the new Environmental Code has updated the previous 2007 version with the following new legal amendments: introduction of new legal provisions regarding definitions of environmental damage and environmental responsibility; classification of enterprises into different categories depending on the level of hazardous impact of their activities; and introduction of legal novelties and methodological assessment system for evaluating the environmental impact of activities of enterprises. All these were also highlighted in detail by two local experts named Eldos Abakhanov [130] and Leila Makhmetova [129], who provided their viewpoints and analysis regarding legislative novelties and their implications for society, enterprises, and environmental state policies.

Besides that, significant legal amendments were also introduced for the environmental protection of forests, soils, water security, and tightening of laws for violation of laws related to tax code, forestry code, water code, and land code. However, if we are speaking of environmental education and environmental awareness aspects, here new changes were especially visible in Articles 191-194 and Article 184. For instance, more detailed information was provided in Article 184 on how state actions have strengthened the public's participation in environmental control and monitoring (e.g., in public hearings), and removal of limitations on public access to environmental information on sensitive aspects related to air pollution, waste management issues, biodiversity problem, energy balance issues, land resources, and climate change problems.

Besides that, another novelty of state support measures also included the introduction of “state and social contracts” in support of innovative methodological practices in fields of environmental education as well as in the training of ecological specialists, particularly climate change adaptation specialists. Moreover, regarding the aspects of environmental education, it is worth noting that the new Environmental Code has introduced the implementation of new academic disciplines (e.g., environmental protection and use of natural resources) within the curriculum of the education system. Last but not the least, the new Environmental Code also encouraged the focus on new research areas such as natural ecosystems; biodiversity matters; climate change impact analysis and mitigation efforts; and analysis of the impact of environmental problems on public health. With all these new findings having summarized, it can be concluded that indeed the new Environmental Code had brought new waves of legal changes and legal novelties that should in the long-run improve the environmental state policies.

The interview results have also revealed for us new findings. First, the government recognizes that the problem of low environmental awareness exists due to various factors, the particularly consumerist culture of the Kazakhstani society and the lack of public knowledge in environmental education. Second, the Ministry of Ecology, Geology, and Natural Resources do agree with the fact that the country has experienced an improvement in the level of environmental awareness among the general population since the 1990s and early 2000s. Third, according to the Ministry, ecological problems such as air pollution, waste management problem, and climate change were and can be regarded within the contemporary and future period as the most serious environmental problems to deal with. Fourth, the Ministry does acknowledge the weight of importance for not only the civil society organizations in raising environmental awareness levels among the population, but also the active role and participation of the public in catalyzing pro-environmental changes within the society. According to them, the triad relationship between the public community, civil society organizations, and the government is very important to generate socially significant changes and effective pro-environmental policies. In conclusion, the Ministry does not undermine the issue of environmental awareness problem in the country and considers it as a serious matter alongside air pollution, waste management problems, and climate change issues. At the same time, the Ministry believes that the public has become more environmentally aware compared to two and even three decennials ago and is now able to solve the environmental awareness issue more effectively with the help of civil society organizations.

All in all, as already noted, the environmental situation in Kazakhstan requires urgent attention by both the government and civil society organizations. The introduction of the new Environmental Code alongside the Zhasyl Kazakhstan national program has come at a time to tackle some of the ecological issues in the country. While, on the one hand, the new Environmental Code laid out updated and improved legislative changes and strengthened the regulatory frameworks on aspects such as the efficiency of environmental impact assessment, waste management issues, and public and citizen participation in environmental control and environmental awareness; on the other hand, the Zhasyl Kazakhstan program, on the other hand, provided some preliminary state programs to achieve specific environmental objectives on four specific strategic paths, with one of them particularly addressing the issue of low environmental awareness level among the public. As some local experts such as Makhmetova [129] and Abakhanov [130] have evaluated in detail the previous shortcomings of the older 2007 version of the Environmental Code with the new 2021 version, they have highlighted the new path the state has now taken to strengthen the regulatory and legislative aspect concerning environmental aspects in Kazakhstan. With that said, it is fair to say that both local experts view first of all the new Environmental Code as a successful successor to the 2007 version.

According to Abakhanov [130], the new Environmental Code has introduced some of the best practices and experiences of the OECD and European countries in how they have tackled and still tackle environmental issues in their country, and such a re-adoption and re-adaptation of legislation could “speed up” the state’s pro-environmental modern approaches to environmental problems. According to his opinion, the legislative changes of empowering the public community in being able to monitor state projects or activities of enterprises via environmental control should allow the public to become more responsible and actively involved in monitoring environmental issues. Furthermore, such empowerment brings in the idea to educate the public on environmental control mechanisms as well as on the current adverse impacts of enterprises on the environment. This is especially true if we also infer the statements provided by the experts of the Ministry of Ecology, Geology, and Natural Resources on the crucial “triad” role of the public community, civil society organizations, and the state in raising environmental awareness levels.

Besides that, Abakhanov [130] also stressed the strong impact the new Environmental Code had on enterprises, by which enterprises were now under strict surveillance while also at the same time given more responsibility to improve the quality of industrial environmental control. All these new legislative novelties should strengthen the institutional and regulatory framework on how environmental issues were to be effectively tackled in Kazakhstan.

5. Conclusion

Concerning the research limitation, there are several to highlight. First and foremost, the results of the content analysis of two official documents to a certain degree can be said to be based on the subjective qualitative analysis of the researcher. The objectivity of the research analysis of the researcher is a controversial aspect of content analysis; as qualitative document analysis involves subjective data interpretation. In other words, the main tool in the case of qualitative content analysis is research. Thus, it might be difficult to assess the validity of the analysis.

Second, it is also worth mentioning that our primary data findings from our interview results only provided one side of the coin. In other words, our primary data only depicted the point of view of the government regarding environmental awareness aspects. Thus, this paper did not include the viewpoints of other relevant actors, such as members of local civil society organizations; members of the international NGOs; or the general public.

And finally, a third research limitation is that our study mainly focused on national state documents. Hence, our paper did not evaluate in detail the projects or programs provided by civil society organizations or NGOs, particularly those presented by UNDP or UNEP.

6. Recommendation

For further research suggestions, this paper suggests the following recommendations. First and foremost, it would be very valuable to get primary data on the level of environmental awareness among local Kazakhstani and international civil society organizations (e.g., employees from UNDP Kazakhstan, ECOJER, or Green Women Association), Kazakhstani civil servants or employees of private enterprises. Being able to collect information from such a diverse range of groups of the population could enrich the research on environmental awareness studies by extending the data findings to other groups of society, which could give us a clue on how different societal groups perceive and understand environmental awareness issues in comparison to others. This should help to tinker effectively with environmental state programs as well as target the environmental awareness-raising needs, shortcomings, and objectives of each group of society.

Another research suggestion concerns the idea to write a follow-up paper on whether citizens assess environmental awareness programs at both local and national levels as effective or ineffective. This concerns particularly the national program “Zhasyl Kazakhstan.” Such research would bring additional valuable insight into the citizen’s point of view towards environmental state policies, as such studies are rather extremely rare to non-existent in the context of environmental awareness studies in Kazakhstan. Thus, it could help policy makers to understand their implementation flaws and shortcomings from the eyes of the individual citizen.

And finally, it would be very valuable to conduct an impact assessment of environmental awareness programs, particularly involving the “Zhasyl Kazakhstan” program. By definition, an impact assessment measures the effectiveness of organizational or program activities and judges the importance of changes brought by them to various sectors of the economy, state, and society. A paper on the impact assessment of a program could shed light on aspects such as whether the short-term and long-term objectives of the program were reached and what important changes it brought with it for the target group. Moreover, it could also provide us with some information on the positive and negative impact of the program on the target groups; help us to uncover the intended or unintended long-term results of the program; and assess the relevance of program strategies and whether current strategies contribute to the overall goal. It should also be noted that overall governmental funding for research and development (R&D) remains quite low in Kazakhstan. Thus, studies or state programs related to environmental awareness aspects need to be encouraged in Kazakhstan in the future.

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