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ENVIRONMENTAL AWARENESS STUDY IN KAZAKHSTAN: A CRITICAL LITERATURE REVIEW

Environmental problems in Kazakhstan are serious issues to be dealt with, as it ranges from problems of water shortages to nationwide land degradation issues. Within that, one particular problem sticks out that has yet not been significantly scholarly studied. The problem of environmental awareness issue has been known to play a crucial role in sustainable development and pro-ecological programs and policies, as for more than five decades' various Western researcher works have outlined the positive effects of raising the level of environmental awareness among different groups of population. However, this specific research area has not been thoroughly studied in the context of a Central Asian region, particularly that of Kazakhstan.

In light of these problems, this research paper aims to provide a critical literature review on environmental awareness studies in the context of Kazakhstan by examining prominent local and international scholarly works on this subject matter. Hence, the objectives of this paper is to provide a foundation of knowledge on the topic; identify research gaps to prevent research inconsistencies; uncover previous research findings and research methodologies used; and compare and contrast the research findings in order to answer unresolved open questions. For that, a total of 82 studies were analyzed.

Key words: Kazakhstan, environmental awareness, literature review, content analysis.

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Қазақстандағы экологиялық сауаттылықты зерттеу: әдебиетке сыни шолу

Қазақстандағы экологиялық проблемалар күрделі проблемалар болып табылады, өйткені олар су тапшылығы проблемаларынан бастап жердің тозуының жалпыұлттық проблемаларына дейін түрленеді. Осының аясында әлі елеулі ғылыми зерттеу жүргізілмеген бір нақты проблема ерекшеленеді. Экологиялық хабардарлық мәселесі тұрақты даму және қоршаған ортаны қорғау бағдарламалары мен саясатында шешуші рөл атқаратыны белгілі, өйткені бес онжылдықтан астам уақыт ішінде әртүрлі батыстық зерттеу жұмыстары халықтың әртүрлі топтары арасында экологиялық хабардарлықты арттырудың оң әсерін сипаттады. Алайда, бұл нақты зерттеу саласы Орталық Азия өңірінің, әсіресе Қазақстанның контекстінде толық зерттелген жоқ.

Осы проблемалардың нәтижесінде осы зерттеу жұмысының мақсаты-осы тақырып бойынша танымал жергілікті және халықаралық ғылыми жұмыстарды зерделеу арқылы Қазақстан контекстінде экологиялық хабардарлықты зерттеу бойынша әдебиеттерге сыни шолу жасау. Сондықтан, осы мақаланың мақсаты-тақырып бойынша білімнің негізін қалау; зерттеулердегі сәйкессіздіктердің алдын алу үшін зерттеулердегі олқылықтарды анықтау; алдыңғы зерттеулердің нәтижелері мен қолданылған зерттеу әдістемелерін ашу; шешілмеген ашық сұрақтарға жауап беру үшін зерттеу нәтижелерін салыстыру және салыстыру. Бұл үшін барлығы 82 мақала талданды.

Түйін сөздер: Қазақстан, экологиялық түсінік, әдеби шолу, мазмұнды талдау, қоршаған орта.

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Исследование экологической осведомленности в Казахстане: критический обзор литературы

Экологические проблемы в Казахстане являются серьезными проблемами, которые необходимо решать, поскольку они варьируются от проблем нехватки воды до общенациональных проблем деградации земель. В рамках этого выделяется одна специфическая проблема, которая еще не получила серьезного научного изучения. Известно, что проблема экологической

осведомленности играет решающую роль в программах и политике устойчивого развития и защиты окружающей среды, поскольку на протяжении более пяти десятилетий в различных западных исследовательских работах описывались положительные эффекты повышения экологической осведомленности среди различных групп населения. Однако эта конкретная область исследований не была полностью изучена в контексте Центрально азиатского региона, особенно Казахстана.

Цель данной исследовательской работы – дать критический обзор литературы по исследованию экологической осведомленности в контексте Казахстана путем изучения известных местных и международных научных работ по этой теме. Следовательно, задачи этой статьи – заложить основу знаний по данной теме; выявить пробелы в исследованиях, чтобы предотвратить несоответствия в исследованиях; раскрыть результаты предыдущих исследований и используемые методологии исследований; а также сравнить и сопоставить результаты исследований, чтобы ответить на нерешенные открытые вопросы. Всего для этого было проанализировано 82 статьи.

Ключевые слова: Казахстан, экологическое сознание, литературный обзор, анализ содержания.

Introduction

The environment with its complex physical, chemical and biotic factors is an important aspect to be studied not only for academics, but also for governments in terms of developing natural resource management policies, feasible sustainable development programs as well as building an ecofriendly bridge between the human society and ecological community. One of these environmental aspects that is of importance is the study of environmental awareness.

Environmental awareness is a social concept that is understood as the state of awareness of the public towards the surrounding ecological environment. The issue of environmental awareness has long been studied by various scholars based on different contexts and lenses. Kazakhstan is especially plagued by serious environmental problems ranging from water shortage issues to air pollution. The level of environmental awareness among the public has been since the start of the new millennium addressed both by the government and international organizations such as the UNDP and UNECE. However, studies in this area has yet not seen a significant impact. With the rising environmental problems becoming ever more crucial for the Kazakhstani government and the society to handle, the importance of studying environmental awareness levels have also become a crucial component to research on. Considering that, a critical literature review of previous studies on environmental awareness among local Kazakhstani and international scholars could shed light to the existent research gap on environmental awareness study in Kazakhstan.

There are three research objectives that this research paper aims to achieve. First, to provide a

foundation of knowledge about the research topic discussed. Second, identify area of prior studies and their research findings to prevent duplication and allow for identification of inconsistencies with gaps in research. And third, compare as well as contrast main findings of researchers and answer open questions left from other research.

Environmental Awareness: Origin, Definition & Scope

Many international scholars for the last fifty years have defined the concept of environmental awareness. According to Kokkinen (2013: 21), the origin of the concept emerged in the global stage in the early 1970's, when environmentalist movements in the USA had gained momentum and turned into political activism. In our contemporary time period, the concept of environmental awareness can be studied from different approaches, with different methodological tools, theoretical frameworks as well as from different contextual aspects (Kokkinen, 2013: 21). Environmental awareness can be defined as a state of awareness of people on environmental problems (Kokkinen, 2013: 9). Others also defined it as a people's perception about environmental issues, which include also the aggregate aspects of environmental knowledge, value and attitudes of a person which all together affect the level of environmental awareness (Handoyo et al., 2021: 2). A more sustainable development definition would depict it as a reflection of one's attitude towards the environmental surroundings of an individual (Kollmus, Agyeman, 2002: 253) (Ham et al., 2016: 160). Hence, environmental awareness can be defined from various aspects due to its abstractly conceptualized term (Kokkinen, 2013: 7).

The concept of environmental awareness is often used in studies concerning environmental edu-

cation (Lozano, 2006) (Sola, 2014); sustainable development (Salim, 1982) (Awan, Abbasi, 2013); and general understanding the social relationship between human beings and the natural world (Fernandez-Manzanal et al., 2007). Other scholars have used the concept within scope of research of mass and social media (Arlt et al., 2011) (Otinga, 2014), or environmental protection studies (Bassi et al., 2019) (Abdul-Wahab, 2008). The words ecological awareness, ecological consciousness can be used interchangeably with the word environmental (Wierzbinski et al., 2021: 2). However, since the concept of environmental awareness is a socially constructed concept, its theoretical framework, determinants, and aspects may be understood differently for each scholar depending on the subject matter studied in relation to environmental awareness studies. Different determinants exist that define the level of environmental awareness among individuals and the society. Among the most prominent determinant that researchers have used and analyzed concerns the variable of knowledge, such as in studies by Salim (1982), Lozano (2006) and Kokkinen (2013). Other determinants include social and personal norms in the study by Biel and Thøgersen (2007); environmental behavior in the works of Sabzehei et al (2016) and Duroy et al. (2005); or environmental attitude variable by the scholarly works of Shobeiri (2005) and Arcury (1990).

Research Context of Kazakhstan

In the context of Kazakhstan, environmental problems are serious matters to be dealt with. Various local and international scholars have analyzed different environmental problems and have conducted different studies and came to interesting conclusions. Ospanova (2014: 14) provided a summary of the major environmental problems that concern Kazakhstan. According to the study, Kazakhstan's major environmental problems are the following: nation-wide desertification and land degradation issues; degradation of ecosystems near the Caspian Sea; Aral Sea and water shortage problem; air pollution; spill-over effects of industrial waste; waste management and renewable energy matters (Ospanova, 2014: 14). These environmental problems were also highlighted by various local and international scholars as well as international organizations. For instance, these include UNDP (2004: 79-100), UNECE (2019: 161 – 250), UNECE (2000: 51 – 161; 2008: 14-16), Asian Development Bank (2010: 150-161), WHO (1999: 19-20), Russel et al. (2018: 736), White (2019: 2-7), Micklin (2016: 2-21), Kenessariyev et al. (2013: 869 – 875), Nugu-

manova et al. (2017: 1-37) and many others. While Nugumanova et al. (2017: 3-9) and Kenessariyev et al. (2013: 869 – 875) have pinpointed the environmental problem of air pollution, others emphasized the serious environmental issues concerning water resource management (UNDP, 2004: 98 – 100), or Aral and Caspian Sea (UNDP, 2004: 67, 98) (White, 2019: 2) (Micklin, 2016: 2-21).

Environmental awareness studies have not gained much popularity as in Western academia. In fact, the term environmental awareness is a new topic which Kazakhstani scholars have only started to discuss in detail with the start of the new millennium. Since Kazakhstan gained its independence, many international organizations have highlighted the importance of regulating environmental management policies to combat the low level of environmental awareness problems in the country. For instance, United Nations Economic Commission for Europe (UNECE, 2008: 55-63) in their yearly environmental performance review reports have stated that Kazakhstan faced a lack of research data with no reliable information dispersal portals, which aggravated not only scholarly research works but had also an indirect impact on informing the public about environmental problems. For instance, back in the year 2000, the UNECE (2000: 17) reported the low level of public awareness for environmental problems. Moreover, according to the Bureau of National Statistics of the Agency for Strategic planning and reform of the Republic of Kazakhstan (2020), Kazakhstan's environmental problems are becoming ever more important for the government to address. For instance, the total expenses from 2015 to 2020 have risen by more than 60% (Bureau of National Statistics of the Agency for Strategic planning and reform of the Republic of Kazakhstan, 2020). The same trend is also true for investment flows into sectors of renewable energy or green economy or investments into research works, suggesting that more and more attention is given to environmentally related aspects in the country (Bureau of National Statistics of the Agency for Strategic planning and reform of the Republic of Kazakhstan, 2020). According to Central Asian Analytical Network (CAAN), Kazakhstan despite its green growth initiatives in cooperation with the UNDP, the environmental literacy level remains low (Zhusipbek, Nagaeva, 2018: paragraph 3). Here, the issue does not end with low public awareness, but also with other environmental issues such as waste management problems, weak environmental education, whitewashing problem at the governmental level or how to promote regional-

ly pro-environmental actions via the so-called nudging methods (Zhusipbek, Nagaeva, 2018: paragraph 8 – 20).

The government has been supporting several pro-environmental projects to raise the level of environmental awareness among the Kazakhstani public society. One of those projects involved the UNDP (2020a: paragraph 1) in launching a project to analyze the level of awareness in Kazakhstan towards climate changes. According to the social survey results, which covered only five regions of Kazakhstan (Nur-Sultan City, Almaty, East Kazakhstan, and Karaganda region), more than half of the respondents assessed the environmental problems in Kazakhstan as a serious issue (UNDP, 2020a: paragraph 4). Moreover, the survey also showed that air pollution was one of the most detrimental environmental issues that needed to be dealt with following environmental problems such as water contamination aspects (UNDP, 2020a: paragraph 6). Interestingly, 62% of the respondents were not aware of the government-initiated projects that have been undertaken to battle the negative effects of climate change (UNDP, 2020a: paragraph 8). Other projects also involved the government-backed up programs of environmental education processes since 2004 with the cooperation of the UNDP (2004: 177). For instance, since 2020, the government alongside the UNDP financed seventeen environmental education pilot projects that will last until 2022 (UNDP, 2020b: paragraph 7). On a legislative level, since the introduction of the new Environmental Code by the Ministry of Ecology, Geology and Natural Resources in 2020, various complex environmental issues will be addressed, and new legislative laws proposed in the near upcoming future.

Research Objective

The main objective of this research is to conduct a critical literature review of environmental awareness studies related to the context of the Republic of Kazakhstan. A literature review is a systematic analysis of research works about a given subject. It is the process of reviewing the literature of a subject matter, which allows scholars to understand the current state of the subject area in a given context and identify possible research gaps (Arshed, Danson, 2015: 31). Furthermore, a literature review gives scholars an understanding of the scope of knowledge on a subject matter. In other words, literature reviews provide an overview on the scope of what so far has been studied and what knowledge gaps

still exist for researchers to study (Arshed, Danson, 2015: 31).

The research objectives of this literature review are the following. First, by providing a comprehensive summary of the main research works conducted by local and international scholars on environmental studies in Kazakhstan, this paper is able to provide a foundation of knowledge on the topic. Second, by understanding their scope of research analysis according to their themes, the research inconsistencies and research gaps are identified. Third, via a content analysis, previous research findings are compared and contrasted with each other that would allow to answer unresolved open questions. Since no literature reviews have yet been done on environmental awareness studies in the context of Kazakhstan, this paper will serve as a basis for enlightening and informing local and international scholars, policy makers, environmental activists and NGOs on scholarly works in environmental awareness and possible research gaps. Hence, this paper justifies its research purpose.

Research Methodology

For this study, the search engine *google scholar* was used as a source of database for searching academic papers written in Kazakh, Russian and English language on the subject matter. The following keywords were used to type into the search bar of google scholar in all three languages: ecological consciousness Kazakhstan; environmental awareness Kazakhstan; and ecological awareness Kazakhstan. As a criterion for choosing the proper research papers that correspond and align with the topic on environmental awareness studies in the context of Kazakhstan, the words “ecological consciousness” and “environmental awareness” or “ecological awareness” were used interchangeably when searching for research papers that were present in their abstract section. Hence, it is not the title of the articles that had to correspond to the keywords, but the abstract and its content. In terms of data analysis, the paper applied a content analysis approach and analyzed the listed 82 research papers according to their thematic division and number of publications by year. In simple terms, a content analysis is the study of contexts and meanings of text, words, messages, and other recorded human communications. It is also understood as a method of using subjective interpretation of the content of text data (Hsieh, Shannon, 2005; 1278) and making valid inferences from texts to the context (White, Marsh, 2006: 23).

While in-depth analysis of each paper is not provided, readers will get a general glimpse on the main findings of each research papers.

Research Results

This section provided the results of our analysis of our literature review, where a table was provided with the list of all retrieved research papers in three languages (Table 1), and the results from our

content analysis with the percentage of scholarly works by language (Figure 1), number of publications by year (Figure 2), and the thematic analysis (Figure 3).

Below are listed all the research papers found via google scholar (Table 1). Column 1 lists the research papers written in the English language. Column 2 lists the research papers written in Russian, while Column 3 lists the research papers written in Kazakh language.

Table 1 – List of all Research Papers

#	Column 1 (English Journals)	Column 2 (Russian Journals)	Column 3 (Kazakh Journals)
1.	Aigul P., Gaukhar B. The Development Process of the Ecological Education in Independent Kazakhstan (2020)	Lygina O., Urazgaliyeva M., Kalaganova N., & Rykova I. (2021). Upravlenie othodami v kontekste perehoda k cirkuljarnoj jekonomike: kejs Kazahstana [Waste management in the context of the transition to a circular economy: the case of Kazakhstan] (2021)	Tursynbaeva B. Zh. Jekologijalyk sanany zertteuidiñ zamanauı teorijalyk tasilderine sholu [Review of modern theoretical approaches to the study of environmental consciousness] (2020)
2.	Litvishko V. et al. Formation of ecological education of the population (2020)	Zajkov A. S., & Mustafina B. S. Rol svyazey s obshhestvennostju v formirovanii jekologicheskogo soznaniya naseleniya goroda Kostanaj [Role of public relations in the formation of ecological consciousness of the population of the city of Kostanay] (2021)	Malikkyzy L., Zhanbekov H., Rogovaya O. Pedagogikalykh zhoghary okhu oryndarynda bolashakh mamandardıng jekologijalykh khuzyrettiligin khalyptastyru [Formation of ecological competence of future specialists in pedagogical universities] (2020)
3.	Agissova F., Sautkina E. The Role of Personal and Political Values in Predicting Environmental Attitudes and Pro-environmental Behavior in Kazakhstan (2020)	Mamirova K. N. Jekologicheskaja kul'tura obuchajushhihsja v vysshem uchebnom zavedenii [Ecological culture of students in a higher educational institution] (2021)	Iskandirova Z. C. Jekologijalyk bilim men taerbie beru [Environmental education and upbringing] (2020)
4.	Tursynbayeva B. Z. et al. National policy and the media in the formation of environmental awareness among students of Kazakhstan (2020)	Rakhimzhanova M.M., Bigarstanova K.K. Social'no-pedagogicheskie uslovija razvitija jekologicheskogo soznaniya studentov vuza [Social and pedagogical conditions for the development of ecological consciousness of university students] (2020)	Voronova N. B. Et al. Studentterdi okhytu zhaene taerbieleu procesinde jekologijalykh khuzyrettilikti khalyptastyru [Formation of ecological competence in the process of teaching and educating students] (2019)
5.	Yessenamanova M. S. et al. Analysis of studying ecological education in Kazakhstan (2020)	Hamzina Sh. Sh., & Kasenova Zh. S. Rol zelenyh smi v reshenii jekologicheskikh problem respublikı kazahstan [Role of green media in solving environmental problems of the Republic of Kazakhstan]. (2020).	Tursynbaeva B. Zh., Baigabylov N. O. Jekologijalykh sanany khalyptastyrudyn aeleumettanulyk aspektileri [Sociological aspects of the formation of ecological consciousness.] (2018)
6.	Alimbaev T. et al. Activities of mining and metallurgical industry enterprises of the Republic of Kazakhstan: environmental problems and possible solutions (2020)	Baimoldina S.M. Jekologo-pravovoe vospitanie v uchebnyh zavedenijah Kazahstana [Ecological and legal education in educational institutions of Kazakhstan] (2019)	Baizhumanova A. Tulghanyñ jekologijalykh maedenietining khalyptasu maeselesi [Problems of formation of ecological culture of the person] (2018)

Continuation of the table

#	Column 1 (English Journals)	Column 2 (Russian Journals)	Column 3 (Kazakh Journals)
7.	Alimbaev T. et al. Environment of East Kazakhstan: state and main directions of optimization (2020)	Duysenbaeva S. T. «Zelenye» navyki kak osnova formirovaniya jekologicheskoy kul'tury i razvitija jekologicheskogo obrazovaniya [«Green» skills as the basis for the formation of environmental culture and the development of environmental education] (2019)	Gabitov T. H., Kaupenbaeva S. M. Jekologijalykh maedeniet zhaene khazakh halkhynyn tabighatty khorghau khundylykhtary [Ecological culture and environmental values of the Kazakh people] (2018)
8.	Dudinova E., Talgat Sh. Environmental discourse in the social networks of Kazakhstan: the construction of an imperative (2020)	Fatkhudinova I. V. Jekologicheskoe obrazovanie, vospitanie i kul'tura [Environmental education, upbringing and culture] (2018)	Zholmuratova G. C. Jekologijalykh bilim zhaene okhu zhujesin jekologijalandyru [Ecological education and greening of the educational system] (2017)
9.	Koch N., Tynkkyne V. P. The geopolitics of renewables in Kazakhstan and Russia (2021)	Skakova A.K., Mukhtarova Sh.M. Formirovanie jekologicheskogo soznaniya mladshih shkol'nikov v usloviyah modernizatsii kazahstanskogo obshhestva [Formation of the ecological consciousness of primary schoolchildren in the context of modernization of Kazakhstani society] (2018)	Bagilbek Y. M. Azamattardyn jekologijalykh aqparatkha kholzhetimdiligin khamtamasyz etu maeseleleri [Issues of ensuring public access to environmental information.] (2016)
10.	Karaca F. et al. Rising environmental awareness in Central Asia: an empirical study from Nur-sultan, Kazakhstan (2019)	Nurgabylova A. Sh. Osobennosti jekologicheskogo obrazovaniya molodezhi v Respublike Kazahstan [Features of environmental education of youth in the Republic of Kazakhstan] (2018)	Aituganova Z., Ilyasheva G. Jekologijalykh taerbie men bilim berudin jekonomikadaghu roeli. Rol' jekologicheskogo vospitaniya i obrazovaniya v razvitii jekonomiki [The role of environmental education in the economy. The role of environmental education and training in economic development] (2016)
11.	Sarbassov Y. et al. Survey on household solid waste sorting at source in developing economies: A case study of Nur-Sultan City in Kazakhstan (2019)	Bisembaeva Z.U., Nagaybaeva Z.A. Jekologicheskoe soznanie cheloveka kak faktor sohraneniya i razvitija sovremennoj civilizatsii [Environmental consciousness of a person as a factor in the preservation and development of modern civilization] (2018)	Abdukarimova S. C. Bastauysh synyp okhushylaryna synyptan tys zhумыs udisinde jekologijalykh taerbie beru [Ecological education of primary school students in the process of extracurricular activities] (2016)
12.	Dlimbetova G. et al. «Greening» Education for Sustainable Development: the Russian Federation and the Republic of Kazakhstan Case Study (2019)	Kaliev A. B., Bitkeeva A. A., & Saginova G. S. Jekologicheskaja gramotnost'-garant zdorovogo budushhego naselenija [Environmental literacy is the guarantor of a healthy future for the population] (2018)	Satbayeva G. S. Environmental education and training for sustainable development (2015)
13.	Pivina L. et al. Assessment of awareness of Kazakhstan population about influence of radiation on the health status (2018)	Batyrbayev N. M. Jekologicheskoe prosveshchenie naselenija kak vazhnaja sostavlajushhaja jekologicheskoy politiki [Environmental education of the population as an important component of environmental policy] (2018)	Bektemisova A. O. Bastauysh mektepte jekologijalykh maedenietti khalyptastyru zholdary [Ways to form an ecological culture in primary school] (2015)
14.	Karimova B. Z., Alimbekova S. K., Mukhatova A. D. Ecological problems in mass media in Kazakhstan (2018)	Ismagulova A.A. Ob aktualizatsii jekologicheskogo obrazovaniya v celjah ustojchivogo razvitija [On the actualization of environmental education for sustainable development] (2017)	Bektemisova A. O. Mektepke dejingi balalardy jekologijalykh taerbieleu [Ecological education of preschool children] (2015)

Continuation of the table

#	Column 1 (English Journals)	Column 2 (Russian Journals)	Column 3 (Kazakh Journals)
15.	Inglezakis V. J. et al. Municipal solid waste management in Kazakhstan: Astana and Almaty case studies (2017)	Apokina L. Yu. Osobennosti formirovaniya jekologicheskoy kul'tury i jekologicheskoy gramotnosti starshih shkol'nikov [Features of the formation of environmental culture and environmental literacy of senior schoolchildren] (2017)	Bektemisova A. O. Jekologijalykh bilim men taerbie beru urdisinde zhana tehnologijalary pajdalanu [Use of new technologies in the process of environmental education] (2015)
16.	Poshanov N. et al. Comparative analysis of existing environmental control in the Republic of Kazakhstan and foreign countries (2018)	Zhilbaev Zh. O., Moiseeva L. V. Ot ohrany okruzhajushhej sredey-k ustojchivomu razvitiyu i «zelenoj jekonomike»: nacional'nyj proekt jekologizacii obrazovanija v Kazahstane [From environmental protection to sustainable development and a «green economy»: a national project for the greening of education in Kazakhstan] (2016)	Abdykhanova A. A. Uzdiksiz bilim beru procesindegi jekologijalykh taerbie [Environmental education in the process of continuing education] (2013)
17.	Sitarov V. A. et al. Students' ecological awareness development on geography lessons in the republic of Kazakhstan (2017)	Hozaeva A. T. Jekologicheskoe vospitanie-zalog jekologicheskoy bezopasnosti respubliky kazahstan [Environmental education is the guarantee of environmental safety of the Republic of Kazakhstan] (2015)	Khuatova G. K. Mektepte zharatylystanu paenderin okhytuda jekologijalykh taerbie berudin erekshelikteri [Features of ecological education in teaching science at school] (2013)
18.	Kuzembayeva A. B. et al. Development of environmental movements in Kazakhstan through the prism of social and political transformations: key trends and current issues (2019)	Kapsanova G.B. K voprosu formirovaniya jekologicheskogo soznaniya budushhih specialistov [On the formation of the environmental consciousness of future specialists] (2015)	Toibazarova N. A. Okhushylardyn jekologijalykh maedenietin khalyptastyrudyn aedisnamalykh negizderi [Methodological bases of formation of ecological culture of students] (2013)
19.	Zhurtbay N. Solution of environmental problems through the media: case of Kazakhstan (2018)	Yakupova R. Zh. Jekologicheskoe vospitanie detej doskol'nogo vozrasta sredstvami pedagogicheskikh tehnologij [Ecological education of preschool children by means of pedagogical technologies] (2015)	
20.	Kassymzhanova N. A., Dutta M. Policy of the Republic of Kazakhstan in the field of sustainable development (2016)	Glazyrina N. Jekologicheskoe soznanie: ego sushhnost, struktura, jetapy formirovaniya [Ecological consciousness: its essence, structure, stages of formation]. (2015).	
21.	Dlimbetova G. et al. Green Skills for Green Economy: Case of the Environmental Education Role in Kazakhstan's Economy (2016)	Kabzhanov A. T., Turlaev A. V. Problemy formirovaniya jekologicheskogo soznaniya v sovremennom obshhestve [Problems of the formation of ecological consciousness in modern society] (2015)	
22.	Kabdiyeva A. Development of NGOs in Kazakhstan (2015)	Temirov K.U., Mustafina A.O. Formirovanie jekologicheskoy kul'tury studentov vuza kak prioritnyj faktor dlja ustojchivogo razvitiya [Formation of ecological culture of university students as a priority factor for sustainable development] (2014)	
23.	Diyar S. et al. Green economy–innovation-based development of Kazakhstan (2014)	Velieva D. S. Jekologicheskije interesy v sisteme jekologicheskoy bezopasnosti: opyt Rossii i Kazahstana [Environmental interests in the system of environmental safety: the experience of Russia and Kazakhstan]. (2014).	

#	Column 1 (English Journals)	Column 2 (Russian Journals)	Column 3 (Kazakh Journals)
24.	Alimbayev T. A. The origin of the Environmental Movements and their directionality in Kazakhstan in 80–90 years of the XX century (2014)	Urekeshova L. O formirovanii jekologicheskogo samosoznaniya lichnosti v processe shkol'nogo obrazovanija (na primere Respubliki Kazahstan [On the formation of ecological self-awareness of the individual in the process of school education (on the example of the Republic of Kazakhstan)] (2014)	
25.	Nezhina T. G., Ibrayeva A. R. Explaining the role of culture and traditions in functioning of civil society organizations in Kazakhstan (2013)	Zhilbaev Zh.O., Nurlanov E.B. Strategija razvitija jekologicheskogo obrazovanija i vospitanija v sovremennom Kazahstane [The strategy for the development of environmental education and upbringing in modern Kazakhstan] (2014)	
26.	Bhuiyan S. H., Khan H. T. A. Climate change and its impacts on older adults' health in Kazakhstan (2011)	Nurmaganbetova V. I., & Dauletbaeva G. K. Vozmozhnosti kabineta novej modifikacii v formirovanii jekologicheskij gramotnosti uchashhihsja [Possibilities of the office of new modification in formation of ecological literacy of students] (2013)	
27.	Bespalov A. M. Relevance of environmental education and its essence (2008)	Gabitov T. H., & Kaupenbaeva S. M. Rol' social'nyh institutov v formirovanii jekologicheskij kul'tury individa [The role of social institutions in the formation of the ecological culture of the individual] (2013)	
28.	Badloe C. The water and environmental sanitation situation in the Central Asian Republics and Kazakhstan (1998)	Seifullina B.S., Kubasheva R.N., Utepkaliev G.I. Formirovanie jekologicheskogo soznaniya v professional'nom stanovlenii budushhih uchitelej-himikov [Formation of ecological consciousness in the professional development of future chemistry teachers] (2013)	
29.	Dlimbetova G., Aliyeva A., Ayazbayeva A. Development of ecological competence for future professions (2015)	Sartaeva R. Sovremennaja jekologija v kontekste sociokul'turnogo razvitija [Modern ecology in the context of sociocultural development] (2012)	
30.		Kertaeva K. M., & Aubakirova S. D. Model' jekologicheskij kul'tury lichnosti [Model of the ecological culture of the individual] (2009)	
31.		Sartaeva R.S. Ustojchivoje jekorazvitie i jekologicheskaja bezopasnost' respublik Kazahstan [Sustainable eco-development and environmental safety of the Republic of Kazakhstan] (2012)	
32.		Li E. D., Kukhtenko L. V. Pedagogicheskie uslovija formirovanija jekologicheskij kul'tury doskol'nikov [Pedagogical conditions for the formation of ecological culture of preschoolers] (2012)	
33.		Zholdasbekov A. A., Sikhimbaeva Zh. S., Shyngysbaeva Zh. A. Issledovanija problem jekologicheskogo obrazovanija studentov [Studies of the problems of ecological education of students] (2012)	

Continuation of the table

#	Column 1 (English Journals)	Column 2 (Russian Journals)	Column 3 (Kazakh Journals)
34.		Arystanova K.A., Sagindikova G.M. Jekologicheskoe obrazovanie kak faktor formirovanija jekologicheski razvitoj lichnosti i jekologizacii obrazovatel'noj sredy sovremennogo Kazahstana [Environmental education as a factor in the formation of an ecologically developed personality and the greening of the educational environment of modern Kazakhstan] (2016)	
35.		Stukalenko N.M., Tarasenko Yu.N., Sharipova G.G. Issledovanie problemy podgotovki budushhih uchitelej k formirovaniju jekologicheskogo soznanija uchashhihsja pri obuchenii izobrazitel'nomu iskusstvu [Research of the problem of preparing future teachers for the formation of ecological consciousness of students in teaching fine arts] (2011)	

Out of these 82 papers, twenty-nine are written in English (34.1%), thirty-five in Russian (43.9%) and only eighteen are written in Kazakh language (22%), as illustrated with the pie chart (Figure 1). In this regard, statistically speaking, more scholarly

work has been presented in Russian rather than English or Kazakh languages. Besides that, it was also surprising to find out that the number of English-written scholarly works published topped over the Kazakh-written papers.

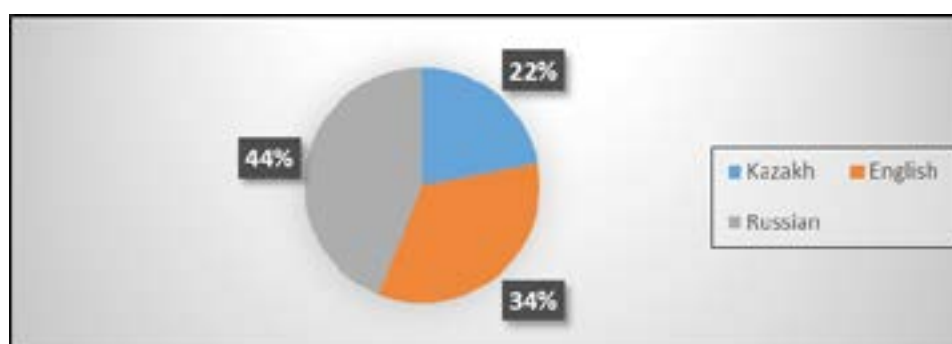


Figure 1 – Percentage of scholarly works by language

The vertical bar chart (Figure 2) illustrates the number of publications by year. Here, we can clearly see an exponential increase in the number of publications since the new millennium, with some decline in 2017 and 2019. However, this decline does not exactly mean that research output decreased, as the following years more publications have resurfaced. Moreover, from 2015 on to 2021 a staggering number of 59 research papers were published compared to the years between 2000

and 2014, where only 22 works were published. Hence, it can be concluded that the number of publications on environmental awareness studies have more than doubled for the last six years. Besides that, only one study going far back to the 1990's was found. This does not mean that researchers did not write on environmental awareness studies in 1990's, but it may indicate to us that research works simply were not published even if scholars wrote about them.

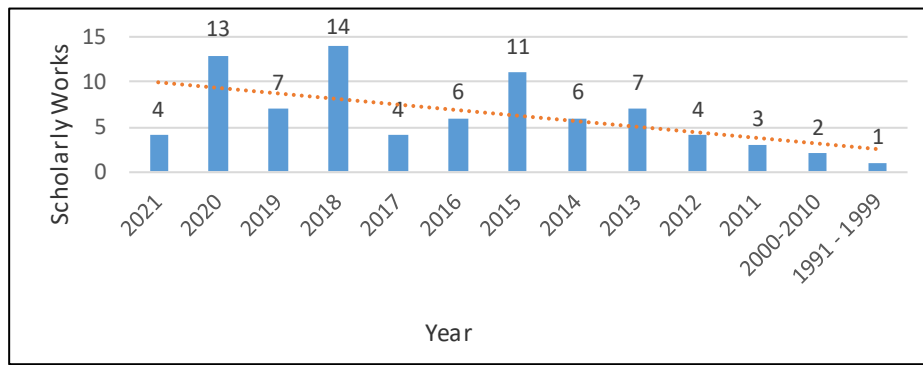


Figure 2 – Number of Publications by Year

In terms of thematic analysis, as illustrated with the horizontal bar chart (Figure 3), close to half of all the research papers on environmental awareness studies (48.8%) are related to aspects of environmental education. In other words, 40 out of the total of 82 papers discuss aspects of environmental education. It is also worth mentioning that 33 out of these 40 papers that discuss environmental education are written either in Russian or Kazakh languages, which would mean that most local researchers put emphasis on the important role of environmental education in Kazakhstan. Here, having analyzed the contents in detail, most schol-

ars discussed the aspects of environmental education for primary and secondary students as well as the pedagogical aspects of teaching methods. Following that, the second and third most topics related to environmental awareness studies were the aspects concerning ecological/environmental culture & consciousness (13.4%) and case studies (9.8%), followed by papers on themes related to NGOs & social institutions (6.1%), country comparative analysis (6.1%) as well as mass and social media discourse (6.1%). Out of 82 papers, the least studied topic was on information access (1.2%) and literature reviews (1.2%).

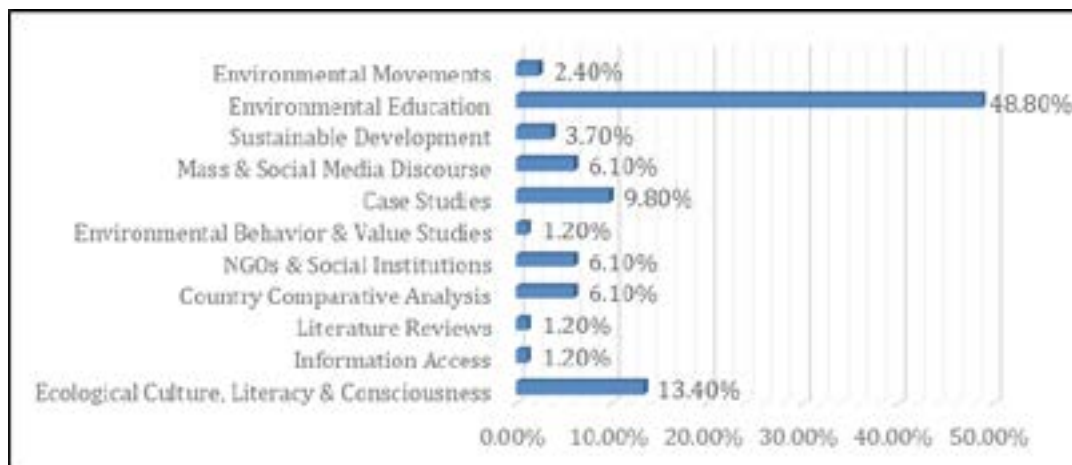


Figure 3 – Thematic Analysis

Discussion

According to the content analysis, the following conclusions can be derived. In general, while most Kazakh and Russian language papers discussed mostly general environmental education and envi-

ronmental awareness aspects, there are some scholars that tried to approach environmental awareness studies from different contexts, such as through the lenses of mass media (Hamzina, Kasenova, 2020); case study (Lygina et al., 2021); comparative country analysis (Velieva, 2014); sustainable develop-

ment aspects (Sartaeva, 2012); ecological literacy (Nurmaganbetova, Dauletbaeva, 2013) (Kalieva et al., 2018); problem of access to environmental information (Bagilbek, 2016) and role of NGOs and social institutions (Sartaeva, 2012) (Gabitov, Kaupenbaeva, 2013) (Zajkov, Mustafina, 2021). Interestingly, only two scholars Kertaeva and Aubakirova (2009) and (Glazyrina, 2015) used models to explain environmental consciousness. While one scholar proposed their own theoretical model for explaining the development and formation of environmental culture of an individual (Kertaeva, Aubakirova, 2009), the other scholar referred to models proposed by Russian scholars to explain the concept of ecological consciousness and how they were formed and structured (Glazyrina, 2015). Another interesting finding was that only one local scholar did some literature review work on theoretical methods for the study of environmental consciousness (Tursynbaeva, 2020). Thus, in summary, Kazakh and Russian written papers do have some variety in discussing environmental awareness studies from different viewpoints. However, more than half (62.26%) of Kazakh and Russian written manuscripts combined, which in total make up 53 out of 82 papers, have rather a narrow focus on environmental education studies.

In terms of English written papers, here the variety of papers and quality of papers are far higher compared to the Russian and Kazakh ones. Here, different scholars discussed different aspects of environmental awareness. For instance, some studied the awareness levels on health impacts of environmental problems from the case study perspective (Pivina et al., 2018); others analyzed the environmental awareness levels for household solid waste sorting (Sarbasov et al., 2019) (Karaca et al., 2019); general level of environmental awareness in Astana and Almaty (Inglezakis et al., 2017); mass and social media discourse (Dudinova, Talgat, 2020) (Tursynbayeva et al., 2020) (Zhurtbay, 2018) (Karimova et al., 2018); country-to-country comparative analysis (Dlimbetova et al., 2019) (Poshanov et al., 2018); study on environmental movements and NGOs (Kabdiyeva, 2015) (Kuzembayeva et al., 2019) (Alimbayev, 2014) (Nezhina, Ibrayeva, 2013) and many others. Here, environmental education was studied only by six papers out of 29 works, which makes 20.69% of the total.

In terms of academia, one may conclude that environmental awareness study in Kazakhstan is relatively a new academic topic for local Kazakhstani scholars. While in the Western world this topic

has been extensively debated, analyzed, and studied since the early 1980's, Kazakhstan's academia has still a long way to go. Despite many research papers having been published on this subject matter since the start of the new millennium, the quality of research papers, particularly those written in Russian or Kazakh, lack a more scientific approach. For instance, through the content analysis it was noted that most research papers written in Kazakh or Russian discussed environmental awareness and environmental education aspects by referring to Russian academic sources. In other words, the majority of Kazakh and Russian papers have relied on Russian academic sources rather than Western academic sources. Thus, Kazakhstani scholars could have used Western sources of information to enrich their theoretical knowledge, stay up to date with new clear-cut research approaches and compare their results with international scholarly works.

Conclusion

In the context of Kazakhstan, the low level of public awareness for environmental problems have been addressed through various government measures. On the one hand, international organizations such as the UNDP along with the support provided on the governmental level by the Ministry of Ecology, Geology and Natural Resources have launched several awareness raising campaigns, which especially are directed towards environmental education processes. On the other hand, the low level of environmental awareness problems has also been addressed by the United Nations Economic Commission for Europe (UNECE) from 2000 to 2008, local information-analytical portal Central Asian Analytical Network (CAAN), Bureau of National Statistics as well as local and international academic scholars. In this regard, while the problem of low environmental awareness has been given sufficient attention on the government levels, the question of how effective these pro-environmental projects or awareness raising campaigns and programs were and will be is another question that has yet not been answered.

The literature review revealed the following main findings. First, more research papers are published in Russian language (43.9%) on the topic of environmental awareness than in Kazakh (22%) or English (34.1%). Second, almost half of all papers analyzed (48.8%) discuss aspects of environmental education. This was especially evident among papers written in Russian and Kazakh (62.26%). According

to the thematic analysis, the least studied thematic topic was on information access (1.2%) and literature reviews (1.2%). Third, the number of publications on the topic of environmental awareness studies since the new millennium have increased. While almost no studies were written in the 1990's and early 2000's, this number rose exponentially starting from 2010 on till 2021 with 79 publications in total within eleven years. Fourth, according to the content analysis, local Kazakhstani papers lacked a clear-cut research methodology and had limited use of international academic sources.

Concerning the limitations of this literature review paper, there are few that could be mentioned. First, this literature review provides a list of research works only in three languages. In this regard, other manuscripts written in German, French, Spanish, Italian, Chinese or Japanese are not studied in this paper. Another limitation of this paper is its scope of analysis. Since no detailed paper-by-paper analysis is illustrated, the study may lack in-depth case-by-case analysis. Lastly, since this paper only listed and found 82 research papers connected to environmental awareness studies in the context of Kazakhstan via google scholar, there might also be other papers published in other academic search engines.

For instance, include search engines such as CORE, Google Books, RefSeek, Wolfram Alpha, Semantic Scholar, Baidu Scholar and many others.

In terms of future research studies, the paper recommends the following aspects to study for local Kazakhstani scholars. First, due to the low use of research methodologies and consequent lack of primary data in terms of environmental awareness studies among Kazakh and Russian written papers, it would be interesting to reapply various research tools used by international papers. Hence, reusing research tools for the context of Kazakhstan is valuable not only for local academia in enriching their academic output and quality of paper but also for public policy makers, as they could make use of new research tools and new knowledge from the primary data in grasping the degree of environmental awareness problem from various angles. This could eventually support public policy makers implement feasible and improved policy options, programs or projects. Second, since not many people speak English in Kazakhstan, it is crucial to further publish more papers either in Russian or Kazakh languages that will have a bigger outreach of various segments of the population about the scale of the environmental problems in Kazakhstan.

Литература

- Abdul-Wahab S. A. A preliminary investigation into the environmental awareness of the Omani public and their willingness to protect the environment // *American Journal of Environmental Sciences*. – 2008 – №. 1(4). – С. 39-49.
- Agency for Strategic planning and reform of the Republic of Kazakhstan Bureau of National Statistics. Environmental protection in the Republic of Kazakhstan 2015-2019. – 2020. URL: <https://stat.gov.kz/official/industry/157/publication>
- Alimbayev T. A. The origin of the Environmental Movements and their directionality in Kazakhstan in 80–90 years of the XX century // *Қарағанды мемлекеттік университеті, тарих және философия журналы*. – 2014 – № 1(4) – С. 11 -14.
- Arcury T. Environmental attitude and environmental knowledge // *Human organization*. – 1990 – №. 4(49). – С. 300-304.
- Arlt D., Hoppe L., Wolling J. Climate change and media usage: Effects on problem awareness and behavioural intentions // *International Communication Gazette*. – 2011 – №. 1-2(73). – С. 45-63.
- Arshed N., Danson M. The literature review // *Research Methods for Business and Management 2nd Edition*. – London: Goodfellow Publishers Limited. – 2015. – С. 31-50.
- Asian Development Bank. Central Asia Atlas of Natural Resources. ADB, Asian Development Bank. – 2010. Б. 1-223. URL: <https://www.adb.org/publications/central-asia-atlas-natural-resources>
- Awan U., Abbasi A. S. Environmental sustainability through determinism the level of environmental awareness, knowledge and behavior among business graduates // *Research Journal of Environmental and Earth Sciences*. – 2013 – №. 9(5). – С. 505-515.
- Bagilbek Y. M. Азаматтардың экологиялық ақпаратқа қолжетімділігін қамтамасыз ету мәселелері. // *Казахский национальный университет имени Аль-Фараби. Серия Юридическая*. – 2016. – №. 3(71). – С. 202-206.
- Bassi I., Gori E., Iseppi L. Assessing environmental awareness towards protection of the Alps: a case study // *Land Use Policy*. – 2019. – № 9(87). – С. 1-9.
- Biel A., Thøgersen J. Activation of social norms in social dilemmas: A review of the evidence and reflections on the implications for environmental behaviour // *Journal of economic psychology*. – 2007. – №. 1(28). – С. 93-112.
- Велиева Д. С. Экологические интересы в системе экологической безопасности: опыт России и Казахстана // *Поволжский институт управления имени П.А. Столыпина*. – Саратов, 2014. – №. 7. – С. 117-122.
- Габитов Т. Х., Каупенбаева С. М. Роль социальных институтов в формировании экологической культуры индивида // *Казахский национальный университет имени Аль-Фараби. Серия философии, культурологии и политологии*. – № 1(42) – 2013 – С. 55-62.
- Глазырина Н. Л. Экологическое сознание: его сущность, структура, этапы формирования // *Қазақ білім академиясының баяндамалары*. – 2015 – С. 59-65.

- Dlimbetova G., Dzyatkovskaya E., Abenova S., Tsibizova T., Falko V. «Greening» Education for Sustainable Development: the Russian Federation and the Republic of Kazakhstan Case Study // *Proceedings of the 2nd International Conference on Contemporary Education, Social Sciences and Ecological Studies*, Atlantis Press. – 2019. – Т. 356. – С. 55-60.
- Duroy Q. M. The determinants of environmental awareness and behavior // *Journal of Environment and Development*. – 2005. – С. 1-26.
- Дудинова Е., Талгат Ш. Environmental discourse in the social networks of Kazakhstan: the construction of an imperative // *Казахский национальный университет имени Аль-Фараби. Серия Журналистики*. – 2020 – №. 2(56). – С. 56-65.
- Zhurtbay N. Solution of environmental problems through the media: case of Kazakhstan // *Казахский национальный университет имени Аль-Фараби. Серия Журналистики*. – 2018. – №. 1(39). – С. 79-82.
- Жусипбек, Г., Нагаева, Ж. Без экологического сознания не решить экологические проблемы в странах Центральной Азии. СААН – 2018. URL: <https://www.caa-network.org/archives/14565>
- Зайков А. С., Мустафина Б. С. Роль связей с общественностью в формировании экологического сознания населения города Костанай // *DSpace Repository*. – 2021. – С. 669-674.
- Inglezakis V. J. et al. Municipal solid waste management in Kazakhstan: Astana and Almaty case studies. // *Chemical Engineering Transactions*. – 2017. – Т. 56. – С. 565-570.
- Kabdiyeva A. Development of NGOs in Kazakhstan // *European Journal of Business and Social Sciences*. – 2015. – №. 2(4). – С. 159-169.
- Калиева А. Б., Биткеева А. А., Сагинова Г. С. Экологическая грамотность-гарант здорового будущего населения // *Журнал Управление муниципальными отходами как важный фактор устойчивого развития мегаполиса*. – 2018. – №. 1. – С. 285-286.
- Karaca F. et al. Rising environmental awareness in Central Asia: an empirical study from Nur-sultan, Kazakhstan // *International Journal of Environment and Pollution*. – 2019. – №. 4(66). – С. 276-307.
- Karimova B. Z., Alimbekova S. K., Mukhatova A. D. Ecological problems in mass media in Kazakhstan // *Journal of Pharmaceutical Sciences and Research*. – 2018. – №. 6(10). – С. 1422-1427.
- Кертаева К. М., Аубакирова С. Д. Модель экологической культуры личности // *ХАБАРШЫСЫ ВЕСТНИК*. – 2009. – С. 4.
- Kenessariyev U. et al. Human health cost of air pollution in Kazakhstan // *Journal of Environmental Protection*. – 2013. – №. 8(4). – С. 869 – 876.
- Kokkinen E. Measuring environmental awareness in the world // *University of Oulu: Oulu, Finland*. – 2013. – С. 1-84.
- Kollmuss A., Agyeman J. Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? // *Environmental education research*. – 2002. – №. 3(8). – С. 239-260.
- Kuzembayeva A. B. et al. Development of environmental movements in Kazakhstan through the prism of social and political transformations: key trends and current issues // *Central Asian Journal of Social Sciences and Humanities*. – 2019. – №. 1-2(3). – С. 92-99.
- Lozano R. Incorporation and institutionalization of SD into universities: breaking through barriers to change. // *Journal of cleaner production*. – 2006. – №. 9-11(14). – С. 787-796.
- Lygina O. et al. Управление отходами в контексте перехода к циркулярной экономике: кейс Казахстана. // *European Journal of Management Issues*. – 2021. – №. 2(29). – С. 93-100.
- Micklin P. The future Aral Sea: hope and despair // *Environmental Earth Sciences*. – 2016. – №. 9(75). – С. 844-867.
- Nezhina T. G., Ibrayeva A. R. Explaining the role of culture and traditions in functioning of civil society organizations in Kazakhstan // *Voluntas: International Journal of Voluntary and Nonprofit Organizations*. – 2013. – №. 2(24). – С. 335-358.
- Nugumanova L. et al. Environmental problems and policies in Kazakhstan: Air pollution, waste and water. // *IOS Working Papers*. – 2017. – №. 366. – С. 1-38.
- Нурмаганбетова В. И., Даулетбаева Г. К. Возможности кабинета новой модификации в формировании экологической грамотности учащихся // *Евразийский национальный университет*. – 2013. – С. 1-4.
- Ospanova S. Assessing Kazakhstan's policy and institutional framework for a green economy // *International Institute for Environment and Development*. – 2014. – С. 1-36.
- Otinga C. S. Media and environmental awareness in Kenya: the case of TV // *University of Nairobi*. – 2014. – С. 1-74.
- Pivina L. et al. Assessment of awareness of Kazakhstan population about influence of radiation on the health status // *European Journal of Public Health*. – 2018. – №. 4(28). – С. 432.
- Poshanov N. et al. Comparative analysis of existing environmental control in the Republic of Kazakhstan and foreign countries // *Journal of Legal, Ethical and Regulatory Issues*. – 2018. – №. 1(21). – С. 1-7.
- Russell A. et al. A spatial survey of environmental indicators for Kazakhstan: An examination of current conditions and future needs // *International journal of environmental research*. – 2018. – №. 5(12). – С. 735-748.
- Sabzehei M. T., Gholipoor S., Adinevand M. A survey of the relationship between environmental awareness, attitude and pro-environmental behavior of female students at Qom University // *Environmental Education and Sustainable Development*. – 2016. – №. 4(4). – С. 16-5.
- Salim E. Conservation and development // *The Environmentalist*. – 1982. – №. 2(2). – С. 109-116.
- Sarbassov Y. et al. Survey on household solid waste sorting at source in developing economies: A case study of Nur-Sultan City in Kazakhstan // *Sustainability*. – 2019. – №. 22(11). – С. 1-17.
- Сартаева Р. С. Современная экология в контексте социокультурного развития // *Қоғамдық және гуманитарлық сериясы*. – Алматы: НАН РК, 2012. – № 4(284) – С. 43-50.

Shobeiri S. M. A comparative study of environmental awareness and attitude of teachers and students of secondary schools in India and Iran //University of Mysore, Department of Education. – 2005. – С. 1-282.

Sola A. O. Environmental education and public awareness //MCSER Organization, Journal of Educational and Social Research. – 2014. – №. 3(4). – С. 333-337.

Турсынбаева Б. Ж. Экологиялық сананы зерттеудің заманауи теориялық тәсілдеріне шолу //ВЕСТНИК «Социологические и политические науки». – 2020. –№. 2(70). – С. 201-209.

Tursynbayeva B. Z. et al. National policy and the media in the formation of environmental awareness among students of Kazakhstan //Media Watch. – 2020. – №. 3(11). – С. 428-438.

UNDP. Enabling innovative ecological education towards the country's sustainable development. – 2020b. URL: <https://www.kz.undp.org/content/kazakhstan/en/home/projects/sdu/ecological-education.html>

UNDP. Environment and Development Nexus in Kazakhstan. // The GEF Organization, Almaty – 2004. – С. 1-185. URL: <https://www.thegef.org/sites/default/files/ncsa-documents/2147-22347.pdf>

UNDP. Outcomes of an opinion survey on climate change and environmental issues. Opinion Survey. – 2020a. URL: <https://www.kz.undp.org/content/kazakhstan/en/home/presscenter/news/2020/may/outcomes-of-an-opinion-survey-on-climate-change-and-environmenta.html>

UNECE. Environmental Performance Reviews Kazakhstan. – 2000. URL: https://unece.org/DAM/env/epr/epr_studies/kazakhstan.pdf

UNECE. Environmental Performance Reviews Kazakhstan. – 2008. URL: https://unece.org/DAM/env/epr/epr_studies/kazakhstan%20II.pdf

UNECE. Kazakhstan Environmental Performance Reviews Third Review // OECD Publishing, Paris. – 2019. – С. 1-477. URL: https://unece.org/sites/default/files/2021-08/ECE_CEP_185_Eng_0.pdf

White K. D. Environmental Issues in Kazakhstan. // Global Encyclopedia of Public Administration, Public Policy and Governance. Springer Publishing. – 2019. – С. 1-7.

White M. D., Marsh E. E. Content analysis: A flexible methodology //Library trends. – 2006. – №. 1(55). – С. 22-45.

Wierzbinski B. et al. The Role of the Ecological Awareness and the Influence on Food Preferences in Shaping Pro-Ecological Behavior of Young Consumers //Agriculture. – 2021. – №. 4(11). – С. 345.

World Health Organization (WHO). Highlights on health in Kazakhstan. Copenhagen, Denmark. – 1999. – С. 1-27. URL: http://www.euro.who.int/__data/assets/pdf_file/0011/130133/E72497.pdf

Fernández-Manzanal R., Rodríguez-Barreiro L., Carrasquer J. Evaluation of environmental attitudes: Analysis and results of a scale applied to university students //Science Education. – 2007. – №. 6(91). – С. 988-1009.

Хамзина Ш. Ш., Касенова Ж. С. Роль зеленых СМИ в решении экологических проблем республики Казахстан // ЕНУ, Кафедра социальной педагогики и самопознания. – 2020. – С. 161-164.

Ham M., Mrčela D., Horvat M. Insights for measuring environmental awareness //Ekonomski vjesnik: Review of Contemporary Entrepreneurship, Business, and Economic Issues. – 2016. – №. 1(29). – С. 159-176.

Handoyo B., Astina I. K., Mkumbachi R. L. Students' environmental awareness and pro-environmental behaviour: preliminary study of geography students at state university of Malang //IOP Conference Series: Earth and Environmental Science. – IOP Publishing. – 2021. – №. 1(683). – С. 1-7.

Hsieh H. F., Shannon S. E. Three approaches to qualitative content analysis //Qualitative health research. – 2005. – №. 9(15). – С. 1277-1288.

References

Abdul-Wahab S. A. (2008). A preliminary investigation into the environmental awareness of the Omani public and their willingness to protect the environment. *American Journal of Environmental Sciences*, no 1, vol. 4, pp. 39-49.

Agency for Strategic planning and reform of the Republic of Kazakhstan Bureau of National Statistics. (2020). Environmental protection in the Republic of Kazakhstan 2015-2019. URL: <https://stat.gov.kz/official/industry/157/publication>

Alimbayev T. A. (2014). The origin of the Environmental Movements and their directionality in Kazakhstan in 80–90 years of the XX century. *Karaganda State University, Journal of History and Philosophy*, no 75, vol. 3, pp. 11-14.

Arcury T. (1990). Environmental attitude and environmental knowledge. *Human organization*, no 4, vol. 49, pp. 300-304.

Arlt D., Hoppe I., Wolling J. (2011). Climate change and media usage: Effects on problem awareness and behavioural intentions. *International Communication Gazette*, no 1-2, vol. 73, pp. 45-63.

Arshed N., Danson M. (2015). *The literature review. Research Methods for Business & Management 2nd Edition*, London, Goodfellow Publishers Limited, pp. 31-50.

Asian Development Bank. (2010). *Central Asia Atlas of Natural Resources*. ADB, Asian Development Bank, pp. 1-223. URL: <https://www.adb.org/publications/central-asia-atlas-natural-resources>

Awan U., Abbasi A. S. (2013). Environmental sustainability through determinism the level of environmental awareness, knowledge and behavior among business graduates. *Research Journal of Environmental and Earth Sciences*, no 9, vol. 5, pp. 505-515.

Bagilbek Y. M. (2016). Azamattardyn jekologijalykh aqparatkha kholzhetimdiligin khamtamasyz etu maeseleleri [Issues of ensuring public access to environmental information]. *Al-Farabi Kazakh National University, Journal of Law Series*, no 3, vol. 71, pp. 202-206.

Bassi I., Gori E., Iseppi L. (2019). Assessing environmental awareness towards protection of the Alps: a case study. *Land Use Policy*, no 9, vol. 87, pp. 1-9.

- Biel A., Thøgersen J. (2007). Activation of social norms in social dilemmas: A review of the evidence and reflections on the implications for environmental behaviour. *Journal of economic psychology*, no 1, vol. 28, pp. 93-112.
- Dlimbetova G., Dzyatkovskaya E., Abenova S., Tsibizova T., Falko V. (2019). «Greening» Education for Sustainable Development: The Russian Federation and the Republic of Kazakhstan Case Study. In *Proceedings of the 2nd International Conference on Contemporary Education, Social Sciences and Ecological Studies*, Atlantis Press, vol. 356, pp. 55-60.
- Dudinova E., Talgat Sh. (2020). Environmental discourse in the social networks of Kazakhstan: the construction of an imperative. *Al-Farabi Kazakh National University, Journal of Journalism*, no 2, vol. 56, pp. 56-65.
- Duroy Q. M. (2005). The determinants of environmental awareness and behavior. *Journal of Environment and Development*, pp. 1-26.
- Fernández-Manzanal R., Rodríguez-Barreiro L., Carrasquer J. (2007). Evaluation of environmental attitudes: Analysis and results of a scale applied to university students. *Science Education*, no 6, vol. 91, pp. 988-1009.
- Gabitov T. H., Kaupenbaeva S. M. (2013). Rol' social'nyh institutov v formirovani jekologicheskoy kul'tury individa [The role of social institutions in the formation of the ecological culture of the individual]. *Al-Farabi Kazakh National University, Journal of Philosophy, Cultural Science and Political Science Series*, no 1, vol. 42, pp. 55-62.
- Glazyrina N. (2015). Jekologicheskoe soznanie: ego sushhnost, struktura, jetapy formirovaniya [Ecological consciousness: its essence, structure, stages of formation]. Report of the Kazakhstani Academy of Education, pp. 59-65.
- Ham M., Mrčela D., Horvat M. (2016). Insights for measuring environmental awareness. *Ekonomski vjesnik: Review of Contemporary Entrepreneurship, Business, and Economic Issues*, no 1, vol. 29, pp. 159-176.
- Hamzina Sh. Sh., Kasenova Zh. S. (2020). Rol zelenyh smi v reshenii jekologicheskikh problem respubliky kazakhstan [Role of green media in solving environmental problems of the Republic of Kazakhstan]. *Eurasian National University, Department of Social Pedagogy and Self-Knowledge*, pp. 161-164.
- Handoyo B., Astina I. K., Mkumbachi R. L. (2021). Students' environmental awareness and pro-environmental behaviour: preliminary study of geography students at state university of Malang. In *IOP Conference Series: Earth and Environmental Science*. no 1, vol. 683, pp. 1-7.
- Hsieh H. F., Shannon S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, no 9, vol. 15, pp. 1277-1288.
- Inglezakis V. J., Moustakas K., Khamitovac G., Tokmurzin D., Rakhmatulina R., Serik B., Pouloupoulos S. G. (2017). Municipal solid waste management in Kazakhstan: Astana and Almaty case studies. *Chemical Engineering Transactions*, vol. 56, pp. 565-570. DOI:10.3303/CET1756095
- Kabdiyeva A. (2015). Development of NGOs in Kazakhstan. *European Journal of Business and Social Sciences*, no 2, vol. 4, pp. 159-169.
- Kalieva A. B., Bitkeeva A. A., Saginova G. S. (2018). Jekologicheskaja gramotnost'-garant zdorovogo budushhego naseleniya [Environmental literacy is the guarantor of a healthy future for the population]. *Journal of Municipal waste management as an important factor in the sustainable development of a metropolis*, no 1, pp. 285-286.
- Karaca F., Machell J., Turkyilmaz A., Kaskina D., Tussupova K. (2019). Rising environmental awareness in Central Asia: an empirical study from Nursultan, Kazakhstan. *International Journal of Environment and Pollution*, no 4, vol. 66, pp. 276-307.
- Karimova B. Z., Alimbekova S. K., Mukhatova A. D. (2018). Ecological problems in mass media in Kazakhstan. *Journal of Pharmaceutical Sciences and Research*, no 6, vol. 10, pp. 1422-1427.
- Kenessariyev U., Golub A., Brody M., Dosmukhametov A., Amrin M., Erzhanova A., Kenessary D. (2013). Human health cost of air pollution in Kazakhstan. *Journal of Environmental Protection*, no 8, vol. 4, pp. 869 – 876.
- Kertaeva K. M., Aubakirova S. D. (2009). Model' jekologicheskoy kul'tury lichnosti [Model of the ecological culture of the individual]. *Karaganda State University*, no 2, vol. 54, pp. 4-9.
- Kokkinen E. (2013). Measuring environmental awareness in the world. *University of Oulu: Oulu, Finland*, pp. 1-84.
- Kollmuss A., Agyeman J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior?. *Environmental education research*, no 3, vol. 8, pp. 239-260.
- Kuzembayeva A. B., Baikushikova G. S., Delovarova L. F., Chukubayev Y. S. (2019). Development of environmental movements in Kazakhstan through the prism of social and political transformations: key trends and current issues. *Central Asian Journal of Social Sciences and Humanities*, no 1-2, mol. 3, pp. 92-99.
- Lozano R. (2006). Incorporation and institutionalization of SD into universities: breaking through barriers to change. *Journal of cleaner production*, no 9-11, vol. 14, pp. 787-796.
- Lygina O., Urazgaliyeva M., Kalaganova N., Rykova I. (2021). Upravlenie othodami v kontekste perehoda k cirkuljarnoj jekonomike: kejs Kazahstana [Waste management in the context of the transition to a circular economy: the case of Kazakhstan]. *European Journal of Management Issues*, no 2, vol. 29, pp. 93-100.
- Micklin P. (2016). The future Aral Sea: hope and despair. *Environmental Earth Sciences*, no 9, vol. 75, pp. 844-867.
- Nezhina T. G., Ibrayeva A. R. (2013). Explaining the role of culture and traditions in functioning of civil society organizations in Kazakhstan. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, no 2, vol. 24, pp. 335-358.
- Nugumanova L., Frey M., Yemelina N., Yugay S. (2017). Environmental problems and policies in Kazakhstan: Air pollution, waste and water. *ECONSTOR, IOS Working Papers*, no 366, pp. 1-38.
- Nurmaganbetova V. I., Dauletbaeva G. K. (2013). Vozmozhnosti kabineta novej modifikacii v formirovani jekologicheskoy gramotnosti uchashhihsja [Possibilities of the office of new modification in formation of ecological literacy of students]. *Eurasian National University, Department of Chemistry, Faculty of Natural Sciences*, pp. 1-4.

- Ospanova S. (2014). Assessing Kazakhstan's policy and institutional framework for a green economy. International Institute for Environment and Development, pp. 1-36.
- Otinga C. S. (2014). Media and environmental awareness in Kenya: the case of TV. University of Nairobi, pp. 1-74.
- Pivina L., Semenova Y. U., Belikhina T., Manatova A., Bulegenov T., Abisheva A., Zhunussova T. (2018). Assessment of awareness of Kazakhstan population about influence of radiation on the health status. *European Journal of Public Health*, no 4, vol. 28, pp. 432.
- Poshanov N., Kosanov Z., Alibekov S. T., Dossymbekova M., Begzhan A. (2018). Comparative analysis of existing environmental control in the Republic of Kazakhstan and foreign countries. *Journal of Legal, Ethical and Regulatory Issues*, no 1, vol. 21, pp. 1-7.
- Russell A., Ghalaieny M., Gazdiyeva B., Zhumabayeva S., Kurmanbayeva A., Akhmetov K. K., Althonayan A. (2018). A spatial survey of environmental indicators for Kazakhstan: An examination of current conditions and future needs. *International Journal of Environmental Research*, no 5, vol. 12, pp. 735-748.
- Sabzehei M. T., Gholipoor S., Adinevand M. (2016). A survey of the relationship between environmental awareness, attitude and pro-environmental behavior of female students at Qom University. *Environmental Education and Sustainable Development*, no 4, vol. 4, pp. 16-5.
- Salim E. (1982). Conservation and development. *The Environmentalist*, no 2, vol. 2, pp. 109-116.
- Sarbassov Y., Sagalova T., Tursunov O., Venetis C., Xenarios S., Inglezakis V. (2019). Survey on household solid waste sorting at source in developing economies: A case study of Nur-Sultan City in Kazakhstan. *Sustainability*, no 22, vol. 11, pp. 1-17.
- Sartaeva R. (2012). Sovremennaja jekologija v kontekste sociokul'turnogo razvitiya [Modern ecology in the context of sociocultural development]. *Series of Social and Human Sciences, NAS RK, Almaty*, no 4, vol. 284, pp. 43-50.
- Shobeiri S. M. (2005). A comparative study of environmental awareness and attitude of teachers and students of secondary schools in India and Iran. University of Mysore, Department of Education, pp. 1-282.
- Sola A. O. (2014). Environmental education and public awareness. MCSER Organization, *Journal of Educational and Social Research*, no 3, vol. 4, pp. 333-337.
- Tursynbaeva B. Zh. (2020). Jekologijalyk sanany zertteuidi zamanauy teoriyalyk tasilderine sholu [Review of modern theoretical approaches to the study of environmental consciousness]. *Journal of sociological and political sciences*, no 2, vol. 70, pp. 201-209.
- Tursynbayeva B. Z., Mukhambetkaliyeva G. M., Auyesbay K. A., Baigabylov N. O. (2020). National policy and the media in the formation of environmental awareness among students of Kazakhstan. *Media Watch*, no 3, vol. 11, pp. 428-438.
- UNDP Organization. (2004). Environment and Development Nexus in Kazakhstan. The GEF Organization Almaty. pp. 1-185. URL: <https://www.thegef.org/sites/default/files/ncsa-documents/2147-22347.pdf>
- UNDP Organization. (2020a). Outcomes of an opinion survey on climate change and environmental issues. Opinion Survey. URL: <https://www.kz.undp.org/content/kazakhstan/en/home/presscenter/news/2020/may/outcomes-of-an-opinion-survey-on-climate-change-and-environmenta.html>
- UNDP Organization. (2020b). Enabling innovative ecological education towards the country's sustainable development. URL: <https://www.kz.undp.org/content/kazakhstan/en/home/projects/sdu/ecological-education.html>
- UNECE Organization. (2000). Environmental Performance Reviews Kazakhstan. URL: https://unece.org/DAM/env/epr/epr_studies/kazakhstan.pdf
- UNECE Organization. (2008). Environmental Performance Reviews Kazakhstan. URL: https://unece.org/DAM/env/epr/epr_studies/kazakhstan%20II.pdf
- UNECE. (2019). Kazakhstan Environmental Performance Reviews Third Review. OECD Publishing, Paris, pp. 1-477. URL: https://unece.org/sites/default/files/2021-08/ECE_CEP_185_Eng_0.pdf
- Velieva D. S. (2014). Jekologicheskie interesy v sisteme jekologicheskoy bezopasnosti: opyt Rossii i Kazahstana [Environmental interests in the system of environmental safety: the experience of Russia and Kazakhstan]. Povolzhskiy Institute of Public Administration, Saratov, Russia, *Journal of Modern Law*, no 7, pp. 117-122.
- White K. D. (2019). Environmental Issues in Kazakhstan. *Global Encyclopedia of Public Administration, Public Policy and Governance*. Springer Publishing, pp. 1-7.
- White M. D., Marsh E. E. (2006). Content analysis: A flexible methodology. *Library trends*, no 1, vol. 55, pp. 22-45.
- Wierzbinski B., Surmacz T., Kuźniar W., Witek L. (2021). The Role of the Ecological Awareness and the Influence on Food Preferences in Shaping Pro-Ecological Behavior of Young Consumers. *Agriculture*, no 4, vol. 11, pp. 345.
- World Health Organization (WHO). (1999). Highlights on health in Kazakhstan. Copenhagen, Denmark, pp. 1-27. URL: http://www.euro.who.int/__data/assets/pdf_file/0011/130133/E72497.pdf
- Zajkov A. S., Mustafina B. S. (2021). Rol svjazej s obshhestvennostju v formirovanii jekologicheskogo soznaniya naselenija goroda Kostanaj [Role of public relations in the formation of ecological consciousness of the population of the city of Kostanay]. *DSPACE Repository*, pp. 669-674.
- Zhurtbay N. (2018). Solution of environmental problems through the media: case of Kazakhstan. *Al-Farabi Kazakh National University. Journal Journalism*, no 1, vol. 39, pp. 79-82.
- Zhusipbek G., Nagaeva Zh. (2018). Bez jekologicheskogo soznaniya ne reshit' jekologicheskie problemy v stranah Central'noj Azii [Without environmental awareness, it is impossible to solve environmental problems in the countries of Central Asia]. CAAN. URL: <https://www.caa-network.org/archives/14565>