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METHODOLOGICAL FOUNDATIONS FOR THE USE OF SUSTAINABLE DEVELOPMENT GOAL MATERIALS (RESPONSIBLE CONSUMPTION AND PRODUCTION) IN THE PROCESS OF LEARNING GEOGRAPHY

Abstract

The article is devoted to the development of innovative approaches to teaching geography aimed at developing students' environmental awareness and practical skills in the field of sustainable development. The article proposes a comprehensive methodology that includes an interdisciplinary approach, project assignments and research on local environmental problems. The purpose of the study is to increase the effectiveness of environmental education and train future specialists who are able to make informed decisions in the field of environmental management. The novelty of the research lies in the development of original practical tasks focused on the study of responsible consumption and production. Practical classes, which include the study of real-world cases of responsible production and consumption, can stimulate students' interest and deepen their understanding of the fundamental principles of ecology. For example, researching the impact of recycling on the local community or analyzing the life cycle of products can inspire students to implement innovative solutions to improve the environment. The results of the study can be used to improve curricula in geography and environmental education.

They explore the possibilities of implementing practical tasks and projects aimed at studying local environmental problems. Special attention is paid to the formation of environmental literacy and a conscious attitude towards the environment among students. Students learn to evaluate the effectiveness of various production methods and choose products that have the least negative impact on the environment.

The article discusses various methods and forms of education that contribute to a deep understanding of the relationship between human activity and natural processes.

Keywords: *sustainable development, environmental responsibility, cyclical economy, ethical consumption, social responsibility*

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ГЕОГРАФИЯНЫ ОҚЫТУ ПРОЦЕСІНДЕ ТҰРАҚТЫ ДАМУ МАҚСАТЫНДАҒЫ МАТЕРИАЛДАРДЫ (ЖАУАПТЫ ТҰТЫНУ ЖӘНЕ ӨНДІРІС) ПАЙДАЛАНУДЫҢ ӘДІСТЕМЕЛІК НЕГІЗДЕРІ

Аңдатпа

Мақала студенттердің экологиялық санасын және тұрақты даму саласындағы практикалық дағдыларын қалыптастыруға бағытталған географияны оқытудың инновациялық тәсілдерін әзірлеуге арналған. Мақалада пәнаралық тәсілді, жобалық тапсырмаларды және жергілікті экологиялық мәселелерді зерттеуді қамтитын кешенді әдістеме ұсынылады. Зерттеудің мақсаты экологиялық білім берудің тиімділігін арттыру және табиғатты пайдалану саласында

тендестірілген шешімдер қабылдауға қабілетті болашақ мамандарды даярлау болып табылады. Зерттеудің жаңалығы жауапты тұтыну мен өндірісті зерттеуге бағытталған түпнұсқа практикалық тапсырмаларды әзірлеу болып табылады. Жауапты өндіріс пен тұтынудың нақты жағдайларын зерттеуді қамтитын практикалық сабақтар оқушылардың қызығушылығын оятып, экологияның негізгі принциптерін түсінуді тереңдете алады. Мысалы, қайта өңдеудің жергілікті қауымдастыққа әсерін зерттеу немесе өнімнің өмірлік циклін талдау студенттерді қоршаған ортаны жақсарту үшін инновациялық шешімдерді енгізуге шабыттандыруы мүмкін. Зерттеу нәтижелерін география және экологиялық білім беру бойынша оқу бағдарламаларын жетілдіру үшін пайдалануға болады.

Жергілікті экологиялық проблемаларды зерттеуге бағытталған практикалық тапсырмалар мен жобаларды енгізу мүмкіндіктерін зерттейді. Студенттердің экологиялық сауаттылығы мен қоршаған ортаға саналы көзқарасын қалыптастыруға ерекше назар аударылады. Студенттер әртүрлі өндіріс әдістерінің тиімділігін бағалауды және қоршаған ортаға ең аз теріс әсер ететін өнімдерді таңдауды үйренеді.

Мақалада адамның іс-әрекеті мен табиғи процестер арасындағы байланысты терең түсінуге ықпал ететін оқытудың әртүрлі әдістері мен формалары қарастырылады.

Түйін сөздер: *тұрақты даму, экологиялық жауапкершілік, циклдік экономика, этикалық тұтыну, әлеуметтік жауапкершілік*

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МЕТОДИЧЕСКИЕ ОСНОВЫ ИСПОЛЬЗОВАНИЯ МАТЕРИАЛОВ ЦЕЛИ УСТОЙЧИВОГО РАЗВИТИЯ (ОТВЕТСТВЕННОЕ ПОТРЕБЛЕНИЕ И ПРОИЗВОДСТВО) В ПРОЦЕССЕ ОБУЧЕНИЯ ГЕОГРАФИИ

Аннотация

Статья посвящена разработке инновационных подходов к преподаванию географии, направленных на формирование у студентов экологического сознания и практических навыков в области устойчивого развития. В статье предлагают комплексную методику, включающую междисциплинарный подход, проектные задания и исследования местных экологических проблем. Целью исследования является повышение эффективности экологического образования и подготовка будущих специалистов, способных принимать взвешенные решения в области природопользования. Новизна исследования заключается в разработке оригинальных практических заданий, ориентированных на изучение ответственного потребления и производства. Практические занятия, которые включают в себя исследование реальных случаев ответственного производства и потребления, могут стимулировать интерес учащихся и углубить понимание фундаментальных принципов экологии. Например, исследование влияния переработки отходов на местное сообщество или анализ жизненного цикла продуктов может вдохновить студентов на внедрение инновационных решений для улучшения состояния окружающей среды. Результаты исследования могут быть использованы для совершенствования учебных программ по географии и экологическому образованию.

Исследуют возможности внедрения практических заданий и проектов, направленных на изучение местных экологических проблем. Особое внимание уделяется формированию у студентов экологической грамотности и сознательного отношения к окружающей среде. Студенты учатся оценивать эффективность различных методов производства и выбирать продукты, которые оказывают наименьшее негативное воздействие на окружающую среду.

В статье рассматриваются различные методы и формы обучения, способствующие глубокому пониманию взаимосвязи между человеческой деятельностью и природными процессами.

Ключевые слова: *устойчивое развитие, экологическая ответственность, циклическая экономика, этичное потребление, социальная ответственность*

Introduction. In the modern world, where environmental problems are becoming more and more urgent, it is important to integrate the topics of responsible consumption and production into the educational process of geography. Teaching geography provides an excellent platform for exploring the relationship between environmental issues and human activities. Formation of students' understanding of the importance of sustainable development, development of environmental thinking and skills of responsible attitude to resources. The need to develop criteria for evaluating the success of the implementation of the principles of sustainable development in the educational process and the level of understanding of these concepts by students. In conclusion, the importance of forming students' active citizenship and willingness to participate in solving environmental problems at the level of the local community and the country as a whole is emphasized.

One of the main aspects of responsible consumption and production is the use of environmentally friendly and sustainable materials. Within the framework of geographical education, students can study various materials used in the production process and assess their environmental sustainability. This helps students develop critical thinking and make informed food choices.

The use of materials obtained and manufactured responsibly can become the basis for creating practical tasks or projects. Students may be asked to develop a presentation or research project in which they analyze various products or companies from an environmental sustainability perspective. This helps students put their knowledge into practice and understand their role in maintaining the balance of the environment.

Main part. The concept of responsible production involves the use of resources and the production of products taking into account environmental, social and economic aspects. It is aimed at reducing the negative impact on the environment and society as a whole. Responsible production is an important concept that helps to reduce the negative impact on the environment and society as a whole. In the modern world, more and more people are realizing the need for responsible consumption and production. This is due to an increased understanding of the importance of preserving natural resources and sustainable development of our planet. Education plays a key role in the formation of such values, therefore, the use of materials for responsible consumption and production is becoming increasingly relevant in the educational process.

Geography is one of the subjects that helps students understand the complex relationship between humans and the environment. Within the framework of this discipline, students get acquainted with geographical systems, study environmental problems, analyze the effects of climate change and landscape changes. However, in order to fully understand these problems, it is necessary to use modern materials that reflect current trends in responsible consumption and production. It is important that educational programs integrate the ideas of sustainable development and responsible production, including projects, research and practical exercises.

The introduction of the principles of responsible production into educational programs can help to form students' awareness of their role in society and responsibility for the choices they make as consumers. This includes studying the life cycle of products — from resource extraction to waste disposal, as well as analyzing the impact of various production processes on the environment. Interactive learning methods, such as project work and participation in environmental initiatives, can inspire students to become more involved in solving modern environmental problems.

Thus, the integration of the concept of responsible production into the course of geography and other subjects is an important step towards the formation of a more conscious and active generation

capable of making informed decisions and contributing to the sustainable development of our planet. It can also contribute to the development of critical thinking and problem-solving skills in students, which will be useful not only in their studies, but also in their future professional path.

Examples of responsible consumption:

- Use of renewable energy sources: The production of energy from renewable sources such as solar and wind energy can help reduce greenhouse gas emissions and other negative environmental impacts.
- Recycling: Recycling can reduce the amount of garbage entering landfills and reduce the negative impact on the environment.
- Use of environmentally friendly materials: the use of environmentally friendly materials in the production of products helps to reduce the negative impact on the environment.
- Emission reduction: Reducing emissions of pollutants from industry can help reduce negative environmental impacts.
- Use of local resources: The use of local resources in the production of a product helps to reduce the negative environmental impact associated with the transportation of the product.
- Reducing energy consumption: Reducing energy consumption in production can help reduce greenhouse gas emissions and other negative environmental impacts.
- Social responsibility: Responsible production also means taking care of workers and society as a whole. This can be achieved by ensuring the safety of workplaces, providing employees with social benefits and much more[1].

Modern geography education should include issues of responsible consumption and production. Our planet is suffering from environmental problems, and we need to learn how to live in harmony with the environment.

Materials that can be used in teaching geography:

- Articles: Articles on the topic of responsible consumption and production, for example, from news sources or scientific journals.
- Videos: Videos that demonstrate examples of responsible production or talk about the negative consequences of irresponsible production.
- Presentations: Presentations that present data on the impact of responsible production on the environment.
- Research projects: Students can conduct research projects on responsible consumption and production, for example, to study the impact of various products or companies on the environment.
- Discussions: Discussions on responsible consumption and production can be held to encourage students to think critically and share ideas.

To the topics of the educational process related to responsible consumption and production. Teaching geography provides an excellent platform for exploring the relationship between environmental issues and human activities. This section discusses the responsible consumption and use of production materials in geography education.

One of the main aspects of responsible consumption and production is the use of environmentally friendly and environmentally friendly materials. As part of a geography education, students can attend classes that are encouraged to study the various materials used in the production process and assess their environmental sustainability. This helps students develop critical thinking and make informed food choices [2].

In addition, the use of materials obtained and manufactured responsibly can become the basis for creating practical tasks or projects. Students may be asked to develop a presentation or research project in which they analyze various products or companies from an environmental sustainability perspective. This helps students put their knowledge into practice and understand their role in maintaining the balance of the environment.

Modern geography education should include issues of responsible consumption and production. After all, our planet suffers from environmental problems, and we need to learn how to live in

harmony with the environment. Responsible consumption and production are ways of using resources that can reduce the negative impact on the environment. Geography teaching can use materials to help students understand how they can contribute to nature conservation. For example, we can talk about how the use of renewable energy sources can help reduce environmental pollution. You can also discuss the problem of waste disposal and talk about how recycling helps reduce the amount of garbage. It is also important to discuss food consumption and talk about how choosing the right food can help reduce the negative impact on the environment. For example, we can talk about how choosing local products can help reduce carbon dioxide emissions associated with food transportation.

Geography teaching can use a variety of materials such as articles, videos, and presentations to help students better understand environmental issues and how they can contribute to its conservation. In general, responsible consumption and production is a very important topic for teaching geography. This helps students better understand environmental issues and how they can contribute to its conservation [3,4].

Materials and methods. To understand the relationship between consumption and the environment: - to introduce the concept. The introduction of the concept of responsible consumption and production is the first step towards understanding the relationship between consumption and the environment. Responsible consumption includes the choice of goods and services that do not harm nature and society, as well as the efficient use of resources. Responsible production means the creation of goods and services that have the least negative impact on the environment.

The geography curriculum provides an excellent opportunity to learn the principles of responsible consumption and production. Students can explore human relations with the environment, analyze environmental problems in various regions of the world and seek solutions to these problems based on the principles of responsible consumption and production [5].

In addition, students can read examples of successful use of materials from responsible consumption and production in various fields of activity

Result. According to the global ecological footprint network, today we lead a lifestyle that requires not 1, but 1.75 planet Earth annually to preserve. On average, 1.2 kg of garbage per city dweller per day, which is 2.12 hundred billion tons of garbage per year. In Russia alone, there are more than 11 kilograms of dangerous electronic waste per person, in Belarus and in Kazakhstan, this figure exceeds 9 kilograms, and in Ukraine- more than 7. In 2050, the number of people belonging to the middle class will increase by 23 billion, which will lead to an increase in demand for various products, the production of which requires already limited natural resources. During the war, Territories face an increase in the amount of waste associated with military operations, including damaged and abandoned military vehicles and equipment, shells, debris of civilian vehicles and buildings, as well as household and medical waste [6].

Responsible consumption. The second dimension of responsibility was forward-looking and indicated which participants had a role to play in realizing a sustainable future. For most resources, the dominant category was consumers/households, whose daily practices were singled out as a platform for intervention. The resources of the third sector contributed to the creation of eco-clubs, so the distribution of responsibility here was assigned to children and schools, who were invited to work together as an institute for sustainable initiatives corresponding to active civic models. Although consumers and schools dominate.

Show full size. Again, the Third Sector and labeling resources divided the responsibility into more participants than other resources, and shared difficult "background situations" better overall. For example, there is a sharp contradiction between Oxfam's description of key members dealing with global food issues, which open up an interdependent global network, and Tesco's resources, which ignore the personal responsibility of the retailer and instead place responsibility on labeling organizations, that is, on consumer choice [7,8].

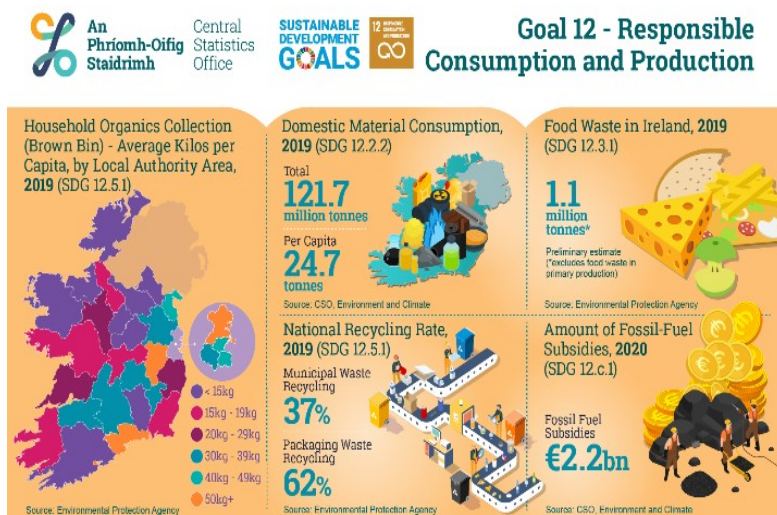


Figure 1. CSO statistical publication. Ireland's UN SDGs - Goal 12 Responsible Consumption and Production 2021

Oxfam works with communities around the world to help solve the problems they face and improve jobs and quality of life. Oxfam is also calling on world leaders to take ambitious action against the current unfair global supply chain. Oxfam believes that it is possible to create a stable system by asking the following questions:

- Governments should convert the minimum wage to a living wage for all workers and combat illegal forced labor in the workplace.

- Companies pay their employees a living wage.

- Employees should be educated about their rights and receive support to improve the quality of their work.

- Consumers are wondering what companies are doing to provide their employees with a living wage and fair treatment.

- Continue to discuss the basic needs of the person as you continue your journey. Remind the children that the Rainforest Alliance and the Fairtrade Foundation (among many other organizations) are working to ensure that people like cocoa growers and banana plantation workers have enough money, at least to meet their basic needs and those of their families.

We are reminded of the ongoing concern about the corporate credibility of sustainable development resources and the messages that different organizational organizations can send. Taking care of brand management creates a negative gap between marketing and educational goals. This tension was discovered during interviews with the authors of the resources, and it can also be seen in the actions offered to students [9].

Actions are stimulated. The resources promoted various educational activities (from crafts to games, discussions, surveys and campaigns). About 30% of the resources (n = 44) did not promote specific actions of children, except for self-information. But most of the resources encouraged specific actions, while the dominant actions were limited to the household/consumption sphere. Waste-related activities (recycling and reuse, refusal to buy unnecessary items, garbage collection), food supply (eco-labeling, plant-based options, local food, growing your own food), energy use (turning off lights/other devices, drying). streetwear, green energy suppliers) and transportation (walking, cycling, public transport and electric vehicles). It is important to note that children were not the main target of many events — a call for less driving, the use of eco-detergents, or turning off the heat to save money was sent to parents/guardians, suggesting that children would be used as a guide for consumer awareness campaigns. For example:

Hand out the task sheet "Energy saving mission" as a homework assignment. This encourages students to bring an on-off message home to their family and friends and determine how much energy is being spent in the house by doing a similar check as is done in this lesson [10,11].

School eco-clubs have been noted as an effective form of "reverse socialization", where children teach their parents rather than the other way around, but more attention should be paid to the "structural and relational aspects of environmental knowledge transfer" that affect the effectiveness of such calls to action. Socio-economic differences between children, when a child is a unique consumer with purchasing preferences different from his parents, and also forms consumer actions[12].

The resources of the third sector are more focused on children who start an eco-club or local campaigns that match the results of job training (group work) and have the opportunity to promote transformational pedagogy with an emphasis on "social agency" through collective action). However, the main educational activity encouraged by these groups was an information campaign demonstrating a model of "information scarcity" (for example, information is a major obstacle to behavior change), which was widely criticized both by our scientists and from the point of view of consumer experience. Propaganda was common to all resources, students were asked to create posters, make lollipops, hold meetings and organize events to teach others to make different choices. The campaign's message was usually supported by initial research, such as surveys or audits of existing practices (how much light was left at home/school or how much food was dumped) or some independent sustainability research (finding out why wind turbines are causing controversy in local communities). Such information campaigns reflect marketing rhetoric, do not propose radical changes in systems, assign specific actions and place responsibility on consumers, not allowing the use of constructivist pedagogy[13].

The third sector's resources predominantly channel their efforts towards engaging children in eco-clubs and local initiatives that align with vocational training outcomes, particularly emphasizing group collaboration and the promotion of transformational pedagogy. This educational framework aims to cultivate a sense of "social agency" among youth through collective action. However, the core activities endorsed by these groups often revolve around information campaigns that highlight the concept of "information scarcity." Critics including scholars and consumer advocates have pointed out that this approach is inadequate for fostering genuine behavioral change, as it oversimplifies the complexities surrounding sustainability issues.

Discussion. Within these campaigns, students engage in various creative projects such as designing informative posters, distributing lollipops as conversation starters, organizing meetings, and conducting events aimed at educating their peers about making environmentally conscious choices. The messages disseminated through these activities are typically grounded in preliminary research, including surveys assessing energy usage in homes and schools or studies examining community sentiment towards renewable energy projects like wind turbines. While these initiatives attempt to leverage factual data to encourage sustainable practices, they often fall short of advocating for systemic transformations.

Furthermore, the primary marketing strategies employed in these campaigns tend to shift accountability for environmental issues onto individual consumers, neglecting the necessary broader structural and systemic adjustments required for genuine environmental advancement. This emphasis on personal responsibility diminishes the potential for a constructivist pedagogical method, which would foster critical thinking and collaborative problem-solving, rather than simply assigning specific actions to individuals. Consequently, while these initiatives may be well-intentioned, their efficacy in promoting sustained behavioral change and systemic reform remains doubtful.

Modern geography education should include issues of responsible consumption and production. After all, our planet suffers from environmental problems, and we need to learn how to live in harmony with the environment. Responsible consumption and production are ways of using

resources that can reduce the negative impact on the environment. Geography teaching can use materials to help students understand how they can contribute to nature conservation. For example, we can talk about how the use of renewable energy sources can help reduce environmental pollution. You can also discuss the problem of waste disposal and talk about how recycling helps reduce the amount of garbage. It is also important to discuss food consumption and talk about how choosing the right food can help reduce the negative impact on the environment. For example, we can talk about how choosing local products can help reduce carbon dioxide emissions associated with food transportation.

Geography teaching can use a variety of materials such as articles, videos, and presentations to help students better understand environmental issues and how they can contribute to its conservation. In general, responsible consumption and production is a very important topic for teaching geography. This helps students better understand environmental issues and how they can contribute to its conservation [13].

Conclusion. Thus, the use of materials for responsible consumption and production in teaching geography is a necessary step in modern educational practice. This will allow students to form an informed attitude to the environment and develop environmental literacy.

The use of such materials contributes to a full understanding of the principles of sustainable development and the impact of human activities on nature. Students can study examples of environmental problems and analyze the consequences of resource abuse. In addition, responsible use of the received and prepared materials can help develop critical thinking and informed decision-making skills. Students learn to evaluate the effectiveness of various production methods and choose products that have the least negative impact on the environment.

However, for the successful implementation of these materials in geography teaching, it is necessary to ensure proper teacher training and access to modern information resources. It is also important to systematically evaluate the effectiveness of the use of such materials among students in order to identify their impact on the level of perception of sustainable development and environmental responsibility. Choosing assessment methods such as testing, project activities, or reflective lessons will help create a clear picture of progress and allow adjustments to be made to the learning process.

Practical classes, which include the study of real-world examples of responsible production and consumption, can stimulate students' interest and deepen their understanding of the fundamental principles of ecology. For example, studying the impact of recycling on the local community or analyzing the life cycle of products can inspire students to implement innovative solutions to improve the environment.

A key aspect of the successful implementation of the topic of responsible production and consumption in the educational process is the integration of knowledge from various disciplines such as economics, sociology and ecology. This will help students to see the interrelationships between various factors contributing to sustainable development. An important task is to create partnerships between educational institutions, public organizations and enterprises to share experiences and resources. Such cooperation can lead to the creation of training programs that combine theoretical knowledge with practical skills.

Thus, responsible practices in production and consumption not only contribute to environmental education, but also form active citizens who are ready to contribute to solving global environmental problems. As a result, the introduction of such approaches into the education system will help to form a new generation capable of taking responsibility not only for the environment, but also for their future.

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«МЕДИЦИНАЛЫҚ ГЕОГРАФИЯ» ЭЛЕКТИВТІ КУРСЫН ОҚЫТУДЫҢ ТИІМДІ ТӘСІЛДЕРІ

Аңдатпа

Дүниежүзілік тәжірибеде әрбір адамның, тіпті қоғамның толыққанды өмір сүруінің басты көрсеткіші оның денсаулығы болып табылады, осыған орай адамның өмір сүруінің сапасын бағалау, оның денінің саулығы жағдайы бірінші орынға шығып отыр. Қазіргі кездегі ғаламдық экологиялық проблемалар, яғни, адамның қоректену ортасын және биосфераны қорғау мен сауықтыру ғылымның жаңа бір бағыты – географиялық ортаның халықтың денсаулығына әсерін жан-жақты зерделеуді қажет етуде.

Сол себепті географияның жаңа бір тармағы медициналық география қалыптасып, дами бастады. Медициналық география ғылымының нозогеография, медициналық ландшафттану, медициналық елтану бағыттары бар. Медициналық географияны ғылыми тілде нозогеография - грек *posos* - ауру түрлері және география деген сөзінен шыққан. Ол адамның жеке ауру түрлерінің географиялық таралуын, яғни халықтың денсаулығына оң және теріс әсер етуші табиғи және әлеуметтік-экономикалық факторлар мен географиялық орта жағдайын, сонымен қатар адамның ауру түрлерінің таралу заңдылықтарын зерттейді. Медициналық тұрғыдан ол аурудың патологиясы, эпидемиологиясы мен гигиенасына жақынырақ, ал географиялық тұрғыдан биогеография мен ландшафтық геохимияға жақын. Сондықтан медициналық географияны «орта-денсаулық» жүйесінің арақатынасы тұрғысынан қарастырады.

Медициналық география географиялық, биологиялық, астрономиялық, химиялық, тарихи, әлеуметтік-экономикалық, экологиялық және т.б. ғылым салаларын біріктіретін кіріктірілген ғылым саласы. Антропологиялық жүйедегі денсаулық деңгейі мен географиялық орта арасындағы байланыс географиялық орта факторларының адамға қатынасы өлшемдерімен айқындалады. Бастапқы географиялық ортаның табиғи «оң» немесе «теріс» қасиеттері жоқ, ол антропогендік іс-әрекеттің нәтижесінде қалыптасады.

Медициналық географияда адам денсаулығына климаттық факторлардың әсері, яғни, метеорологиялық факторлар – ауа температурасы, жел, атмосфералық қысым, ылғалдылық, олардың шұғыл континенталды климат жағдайындағы ерекшеліктерінің қарастырылуы медициналық географияға климаттық тұрғыдан баға беру болып табылады. Мұнда адам денсаулығының акклиматизация және ыстық және суық климат ерекшеліктері мәселелері қарастырылып, биоырғақтылықтың адам өмірі үшін маңыздылығы айқындалады. Демек, географиялық ортаның халықтың денсаулығына әсерін және аурулардың географиялық таралу заңдылықтарын зерделеу білім алушылардың медициналық-географиялық болжам жасау дағдыларын қалыптастыруға мүмкіндік береді.

Түйін сөздер: географиялық орта, медициналық география, нозогеография, аурулардың географиялық таралу заңдылықтары, медициналық-географиялық болжам жасау.