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Issue

Article



e-ISSN: 2409-0085 (online) **p-ISSN:** 2308-4944 (print)

Volume: 109 Year: 2022 Issue: 05

http://T-Science.org **Published:** 18.05.2022





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THE MAIN PRINCIPLES OF FORESTING IN TURKESTAN REGION AS A IMPORTANT CASE OF HIGH MULTIFUNCTIONAL MEDICAL COLLEGE «TURKESTAN» SUPPORT OF GLOBAL AND NATIONAL **GREEN POLICY**



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Abstract: The concept for the conservation and Sustainable Use of Biological diversity of the Republic of Kazakhstan until 2030 determines that the current situation in Kazakhstan is characterized by: a wide variety of social, religious, national characteristics in different population groups; the predominance of consumer attitudes to nature, orientation to the use of natural resources, low level of biological literacy and lack of understanding of the importance of biodiversity conservation; rapid changes public opinion in the context of social and economic reforms. In the field of ecological culture and education this issue defines following tasks written bellow in the short and brief view. The full and more detiled article will be presented in the next level. Nevertheless, in the brief case this article have aim to present how foresting system development is important to the world, Kazakhstan and for the research staff of «High Multidisciplinar Medical Collage «Turkestan»».

Key words: forest, trees, grass, flowers, ground, in-vitro, sun radiation, ecosystem, locality, agroforesting. **Language**: English

Citation: Kalybaev, B., et al. (2022). The main principles of foresting in Turkestan region as a important case of high multifunctional medical college «Turkestan» support of global and national green policy. *ISJ Theoretical & Applied Science*, 05 (109), 478-484.

Soi: http://s-o-i.org/1.1/TAS-05-109-51 Doi: crossef https://dx.doi.org/10.15863/TAS.2022.05.109.51

Scopus ASCC: 1100.

Introduction



По результатам технического задания грантовского проекта КН МОН РК утвержденного приказом Председателя КН МОН РК от «2» марта 2022 года № 27-нж

The concept for the Conservation and Sustainable Use of Biological Diversity of the Republic of Kazakhstan until 2030 defines that the need to integrate the economic assessment of ecosystem services into the national policy of sustainable development of the country is caused by the fact that natural resources play a huge role in the economy of Kazakhstan, but the benefits derived from them in the long term are not taken into account by economic parameters, which is equivalent to the target task. The conceptual framework for the economic assessment of ecosystem services proceeds from the

fact that people are part of ecosystems and there is a dynamic interaction between them that affects human well-being. State policy should take into account the benefits of ecosystem services, and economic assessment is aimed at including the main parameters of biodiversity and ecosystems in the country's economic system, creating a legal framework for the formation of eco-oriented national accounts to include the value of biodiversity and ecosystems in the country's macroeconomic indicators (GDP, GNP) and in the system of international offsets.

Nº	ИРН	Наименование	Заявитель	Научный руководитель	Период реализации	Группа объектов ГНТЭ	Статус	Готовность	Создать
1	AP09561600	Песопроектирование: конструкция уникального образца лесного массива по системе in-vitro	Частное учреждение "Шымкентский университет"	Битемиров Кайрат Турлыбаевич	2022 - 2024	Конкурс на грантовое финансирование исследований молодых ученых по проекту «Жасғалым» на 2022-2024 годы	Создано	100%	Действие

Pic.1

II. RESEARCH METHODOLOGY AND ETHICAL OUESTIONS.

As a statement of clarity of the scientific research question, it is possible to identify the question according to which the interdisciplinary norms of rational monitoring of green technologies through applied forest design will have a positive impact on

the environmental, economic and social situation in the region. This formulation clearly reflects the purpose, question, assumptions and hypotheses of the research plan, justifying their degree of scientific significance systematically and systematically. To answer this question, an attempt was made to justify the present using three hypotheses, the realism of



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which is associated with the goal and expected results of the research plan. The primary hypothesis assumes that interdisciplinary norms of rational monitoring of green technologies through applied forest design have a positive impact on the ecological situation in the region, since a large number of deciduous trees emit a sufficiently large amount of oxygen, a large number of coniferous trees a large number of phytoncites, and mountain air is an excellent wind tunnel for correct propagation. The secondary hypothesis suggests that interdisciplinary norms of rational monitoring of green technologies through applied forest design have a positive impact on the economic situation in the region, since in the future nearby villages will be able to collect and sell such berries as blackberries, raspberries, blueberries, cranberries, blueberries, sea buckthorn, as well as nuts, mulberries and pine nuts, not counting the organization of tourist centers and shops where tourists can buy. The tertiary hypothesis assumes that interdisciplinary norms of rational monitoring of green technologies through applied forest design have a positive impact on the social situation in the region, since it will immediately provide a large number of jobs, organize the infrastructure of service personnel, and other favorable changes for the region. To prove the hypotheses, an attempt was made to justify them using research strategies and approaches that are supposed to be used in the program and descriptive, correlation, and experimental studies depending on the periodicity of tasks, the sequence of which varies depending on a particular stage of the program implementation. The study has a clear planned achievement of the goal through specific actions for a systematic transition from one task to another. In addition to a certain periodicity, this report also illustrates how the resources, timing, and content of the work performed correspond to the goals, objectives, methodology, and expected results of the study. As a research strategy, this can be defined by the use of one methodological tool in one task, the use of other techniques in the second, and the use of other techniques in the third Research approaches in research experimental in nature, where project participants try various methodological tools in accordance with the results obtained. A number of approaches have been developed, as indicated in this section, for which sequences will be defined. These approaches in the framework of the research plan include experiments that are completely new and have not previously been used in such studies. Due to the urgency of the need for such an experiment, it can be considered quite modern. All experiments are planned with a certain frequency and systematics, encoded in a certain algorithm, which justifies the correctness of the design of experiments for its subsequent statistical data processing.

The main tasks.

As a main tasks it is actual to point out some questions, related to the foresting system.

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- 1) The formation of the ecological culture of the population;
- 2) The formation of a responsible active position of citizens in the field of biodiversity conservation;
- 3) The development of a humane attitude to wildlife and the dissemination of environmental ethics:
- 4) Increasing the biological and environmental literacy of the population, increasing the level of environmental knowledge among decision makers, the use of environmental management methods and technologies that preserve biodiversity.

The main areas of work defined by this Concept:

- 1) Promotion of the need to preserve biodiversity in the media;
- 2) Environmental and biological education and public education;
- 3) Informing the public about the state of biodiversity and threats to it;
 - 4) Support for environmental initiatives.

However, these directions are implemented only with the support of international projects. But before starting international project nowadays for our team of «High Multidisciplinar Medical Collage «Turkestan»» it is actual to start from national projects.

III. RESULTS

Currently, the team of "High Multidisciplinary Medical Collage "Turkestan" has submitted a number of applications for targeted grant funding at the international and national level for planting forest assets in the Turkestan region, namely on the segment between the cities of Turkestan and Shaulder. The present will allow to resolve a number of issues related to improving the environmental situation in the region through the planting of forests, the development of tourist infrastructure in this area, improving the quality of human resources, as well as the implementation by the High Multidisciplinary Medical Collage "Turkestan" team of standards to support national and international policies in the field of increasing the number of forests. If we analyze the results in more detail, we can determine the following standards, among which we can distinguish (1).

1. Improvement of the ecological situation in the region through the planting of forests. According to the results of environmental monitoring of atmospheric air by the end of 2020, out of 45 large settlements, 5 settlements belong to territories in which the level of solar radiation exceeds the permissible level (2). These are such settlements as Zhetysay, Saryagash, Arys, Shaulder, Kazygurt. It is also important to note that in the city of Turkestan, a fairly large amount of work was started on the planting of massive territories, which also reduced the level of solar radiation by 15%. However, this is not enough.



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According to the assumptions of the "High Multidisciplinary Medical Collage "Turkestan" team,"it is necessary to promote not only at the stateadministrative level, but also at the level of scientific developments in which it is necessary to increase the number of forests consisting not only of the usual species of deciduous and coniferous trees, but also imported and adapted from other regions of the country and even the world (3). The present will not just solve the issue of air purification from anthropogenic pollution factors from automobile exhaust to industrial waste, which have also been actively working recently, at least on the example of the construction of the highway "Western Europe -Western China", but will also improve the composition of soils for the development of agriculture in the region (4).

2. Development of tourist infrastructure in this area. In particular, regarding this issue, it is possible to indicate whether it is possible to develop forest infrastructure and preserve forests through forest tourism. Forest tourism is a multi-day overnight trip of a group of people along a certain route for the purpose of recreation, physical development, cognition (5). Actually, a forest is a collection of land, vegetation, dominated by trees and shrubs, animals, microorganisms and other natural components, biologically interconnected in their development. affect each other and the environment (6). Tourist and recreational forests are a special category of forest lands, where the function of recreational forest management is the main one: parks, forest parks, green areas of cities. An important qualitative feature of park recreational forests is their readiness for mass recreation, which is achieved by appropriate adaptation of the territory, a sufficiently dense and hardy stitch-road network, the use of small forms of architecture (7). A qualitative feature of forest park territories is the predominance of individual recreation and maximum comfort. A special place is occupied by nature-protected areas and objects. These are nature reserves and sanctuaries of various forms and directions of the reserve, national natural parks, arboretums, valuable natural objects, natural monuments of local significance, monuments of landscape culture (8). Recreational activities are allowed here only in those places and to the extent that guarantees the preservation of valuable natural complexes. Forest tourism covers all age groups of the population, helps to reduce physical fatigue, prevent diseases, restore the physical and spiritual potential of a person (9). It occurs in parks, forest parks, forests of green areas, as well as in suburban and other forests used for recreation. It is based on stationary recreation facilities, and can also be carried out in an unorganized manner (10). Forest tourism combines sports activities, including sports and utilitarian types - hunting, fishing, and is carried out in forests (water protection and operational) assigned to hunting,

fishing and ski-sports bases. At the same time, forest tourism is a combination of recreation with the collection of mushrooms, berries, gardening and gardening in garden and country plots (11). From the point of view of recreational afforestation, the most important characteristics of forest tourism are forest cover, species composition, bonitet, diversity of landscapes, vegetation cover, its tiering, phytoncity, aesthetics of landscapes, frequency of their turnover, wetlands, relief, availability of mushroom and berry places, reservoirs. transport and pedestrian accessibility, the presence of elements of recreational landscaping, medical-geographical features of the area. Thus, it can be noted that forest tourism is the very direction that should be emphasized (12).

- 3. Improving the quality of life and health of human resources. Forest ecosystems create comfortable conditions in the forest both for recreation and for restoring human health this is the sanitary and hygienic role of the forest. All forests have a positive impact on humans. The refreshing effect of one adult tree in the forest corresponds to the effect of several air conditioners in indoor conditions (13):
- 1 ha of forest area moisturizes and refreshes the air 10 times more than the water surface of the same area.
- 1 ha of pine stands at the age of 20-25 years during the growing season absorbs more than 9 tons of carbon dioxide and releases more than 7 tons of oxygen, that is, in 1 hour the pine tree absorbs as much carbon dioxide as 200 people exhale it during the same time.
- The forest has a positive effect on the increase of light oxygen ions with a negative charge while reducing heavy ions, which contributes to better air freshening. Almost all tree species contribute to the appearance of light ions, and as a result, the degree of oxygen ionization in forest air is up to 10 times higher in comparison with urban air.
- Tree leaves trap dust. Therefore, under the canopy of the forest, the air is always cleaner, it contains on average 42% less dust particles. As a result, during the year, the crowns of 1 ha of spruce forest retain up to 30t of dust, pine up to 39t, elm up to 43t.
- 1 ha of forest is able to absorb up to 400 kg of sulfur dioxide, up to 100 kg of chlorides during the growing season. A similar ability is inherent in green plants and in the absorption of heavy metals copper, lead, cadmium.
- Woody plants also detain artificial radionuclides, and therefore the radiation background in the forest is always lower in comparison with the open place.
- As a result of the retention capacity, the transparency of the air above the forest is 10-30% higher.



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- The crowns of deciduous trees absorb up to 26% of sound energy and reflect and disperse up to 74%. Therefore, a forest strip 250 m wide practically negates the noise pollution of the highway.
- The vast majority of woody and shrubby plants emit volatile substances into the atmosphere phytoncides consisting of essential oils, alkaloids, hydrocarbons and having bactericidal properties against microorganisms and protozoa. Deciduous forests secrete up to 3 kg/ha of phytoncides per year, and coniferous forests up to 10 kg (14).
- A beneficial psychophysiological effect caused by the green color, which is a strong sedative, is also associated with a person's stay in the forest. A new direction has emerged in medicine – landscape therapy, which is receiving increasing attention. This is due to the fact that the perceived health-improving effect observed in the forest is promoted by coolness, silence, soft lighting, harmony of sounds and colors, a pleasant smell (15).

The vegetation of the globe annually absorbs up to 180 billion tons of carbon dioxide, and plants emit 142 billion tons.tons of oxygen, and it is consumed:

1.7 billion tons for people's breathing,

for the respiration of animals and insects -25,

for forest and steppe heat - 8,

for the burning of human-produced fuel -30,

for the decomposition of organic residues about – 90 billion tons.

As a result, the entire oxygen consumption is a figure greater than its entry into the atmosphere, that is, the load on the leaf apparatus of plants reaches the limit, and further reduction of the forest area becomes environmentally dangerous for the life of the person himself (5).

Therefore, based on the above data, it can be determined that the development of a forest area in such a semi-steppe, steppe area as the Turkestan region has a beneficial effect on the quality of life not only of the inhabitants of the region, but also on the entire planet in terms of the significance of the allocation of such.

IV. DISCUSSION.

Tourism is a huge industry that has turned the experience of contact with foreign nature and culture into a need for millions of people. And the forests of Kazakhstan, including those predicted as an object of interest for tourists and the general population, are involved in this process (16). The quarantine year has certainly caused serious damage to all industries and small businesses that depend on tourism (17). For countries with large forests, such as neighboring Russia for Kazakhstan, for example, where there are many taiga sites that attract tourists, closing borders meant only a change in the direction of movement (from international to domestic) (18). The Government has adopted a number of strategies and laws to stimulate the development of both the tourism

and forestry sectors in 2022, including in protected areas, which has led to serious questions about where to start increasing forests (19). Currently, the Republic of Kazakhstan has already managed to achieve some progress in this industry on the example of the territory around the city of Nur-Sultan. Nevertheless, when considering the issue of increasing the area of forests in Kazakhstan, a separate emphasis should be given to the issue of its conservation for effective use. One should not think that tourism organized by the administrations of protected areas will ensure the preservation of forest ecosystems (20). The directors of nature reserves depend on the bureaucracy, and dissenting leaders are simply replaced by loyal ones. There are dozens of examples of this. As a result, tourism in protected areas creates a destructive vicious circle (21). Tourist activity is growing, the incomes of protected areas and the managing ministry are growing, but the quality of previously untouched forest ecosystems is also declining. But the purpose of protected areas is to protect biodiversity (9). The real protection of biodiversity is a matter of science (22). It is also important to mention the actively promoted tourism in the Turkestan region as part of the development of sacred tourism in Kazakhstan, where it would be more comfortable for tourists to travel within the forest territories if steppe, where the scorching steppe sun is not so attractive (23). Firstly, tourism has long been an important activity of the indigenous population of the Turkestan region. But in Kazakhstan, where the internationally recognized principle of free, prior and informed consent before the start of any economic activity (SPOS) is still little known and not officially recognized, an important question arises about who is the legitimate beneficiary of such tourism in the country (24). If it's the communities themselves, that's one thing, but if tourism is carried out on the initiative of the Government of the Republic of Kazakhstan and with the help of external investors, then it's time to sound the alarm. As such, it is already important to competently form grant research on this topic, publications and research groups (25).

V. ACHNOWLEGEMENTS.

This study was carried out on the basis of a private institution "Higher Multidisciplinary Medical College "Turkestan"", which has a certain room and equipment for conducting research. It is also necessary to note the high level of involvement of the staff of the college, who have made a significant contribution to the development of this topic. As for the student potential, there were many activists who agreed to take part in the research in various positions listed below. These positions include data and positions from the table below. Thus, as a legal experiment, the research group planned a study with the participation of 16 full-time students in the specialty of nursing. So 8 students participated in an



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experiment where each of them was given the role of an active stalker and a passive stalker, as well as an active victim and a passive victim. Four students monitored and four students supervised each group of tests.

VI. CONCLUSION.

In conclusion, it should be noted that the article defines the role of natural resources in the development of a number of types of tourism that can be classified as nature-oriented. A structural and logical scheme of the components of such tourism has been developed. Communication channels of nature-oriented tourism and sustainable development of territories are shown. The costly mechanism of nature management has been determined to ensure the development of environmentally sustainable tourism.

However, the problem of an integrated approach to the organizational and economic assessment of rehabilitation measures and their possible effectiveness in enhancing sustainable tourism development requires further research.

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VII. RECOMMENDATION.

As a recommendation, more importance should be given to grant financing, since it is the sector of scientific research that has more versatile tools for monitoring, forest design and adaptation of samples of deciduous and coniferous crops to any conditions. The present is, in principle, possible, given the international obligations of the Republic of Kazakhstan, to direct a certain percentage of industrial facilities that they charge for ecology from industrial enterprises to increase the area of forests.

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