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STRATEGIC SELECTION OF GREEN TECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT IN KAZAKHSTAN: A COMPREHENSIVE ANALYSIS OF THE GREEN BUILDINGS CONCEPT FOR THE CITY OF TURKESTAN

Abstract: *Explores the importance of adopting green technology in Kazakhstan for energy efficiency and operational sustainability in the business sector, in response to the growing global trend towards environmentally conscious practices. This research aims to analyze the movement towards green technology and its important role in promoting sustainable development in modern economies. The inquiry focuses on the conceptualization and implementation of green buildings, recognizing them as environmentally friendly constructions and commercially important assets that enhance sustainable business development. By analyzing worldwide data, we explore the wider consequences of embracing green building principles, highlighting their ability to create economic benefits and encourage sustainable behaviors. Turkestan, with its potential for significant development as a prominent tourist destination, was emphasized as an important and advantageous city for incorporating green building principles into the expansion plans. Our analysis highlights the strategic alignment between Turkestan's development initiatives and the adoption of green buildings in the city. Turkestan's environmentally sustainable architectural designs, together with the integration of cultural, historical, natural, and modern components, make it a model for sustainable urban development and increase its attractiveness to foreign tourists. The diverse advantages that green buildings provide to different stakeholders, such as government agencies, enterprises, hotels, and tourist destinations, have been examined. Meanwhile, the attractiveness of the city and the practical benefits of green architecture concepts to appeal to foreign tourists highlight a unique experience that blends architectural innovation with the historic legacy of Turkestan. Research recommends strategically choosing green technology, namely integrating green building principles, to enhance Turkestan's status as a premier tourist destination in Kazakhstan.*

Keywords: *green buildings, sustainable development, strategic planning, international tourism attraction, Kazakhstan's sustainable initiatives, economic benefits.*

Introduction

Kazakhstan has stayed committed to a sustainable future despite facing obstacles including the dissolution of the Soviet Union, economic recessions, and geopolitical tensions. Kazakhstan's dedication to sustainable development on a global scale highlights important legislative achievements. The implementation of the Concept on Transition towards Green Economy in 2013 and the latter update of the Environmental Code in 2019 are crucial milestones in this path Kazakhstan's dedication to environmental responsibility is evident through legislative actions such as implementing the "polluter pays" principle and creating the Green Finance Centre, as emphasised by the AIX Green Bond Rules and the issuance of green bonds in the country The OECD Report on Green Growth is a foundational source that provides insights on Kazakhstan's commitment to green and sustainable development, as well as the collective efforts of Central Asian countries, as provided in Table 1 [1].

Table 1. Climate action: status of net-zero targets of EECCA countries

Country	Has mitigation ambition been increased in updated NDC?	Has a net zero target been set? (type of policy document, covered sector, target year)	LT-LEDS communicated to UNFCCC?
Armenia	Yes	Yes (in NDC, economy wide, 2050)	No
Azerbaijan	Unclear	No	No
Belarus	Yes	No	No
Georgia	Yes	No	Under development
Kazakhstan	No	Yes (in declaration, economy-wide, 2060)	Under development
Kyrgyzstan	Yes	No	No
Moldova	Yes	No	No
Tajikistan	Yes	No	No
Turkmenistan	Unclear	No	No
Ukraine	Yes	Yes (in policy document, economy-wide, 2060)	Yes (2018)

Source: compiled on the basis of data [1]

Abdildin Y.G., Nurkenov S.A., Kerimray A. conducted a thorough assessment of the development of green technology in Kazakhstan, analysing 2042 industrial organisations to provide a detailed landscape. Out of the total, only 266 enterprises disclosed their use of green technology, representing the initial comprehensive study of its sort in Kazakhstan. The bulk of environmentally aware firms (76.4%) were created after 1991, after a significant movement towards sustainability in recent years [2].

The study's analysis of green technology adoption in various industries highlights a notable discrepancy. Green businesses like waste management and renewable energy have a greater adoption rate, whereas large polluters like mining, metallurgy, and the oil and gas sectors are falling behind. This discovery emphasises the necessity of implementing focused interventions and rewards to promote sustainable practices in industries known for high levels of emissions.

Figure 1. Regional ranking on green technologies use
Source: compiled on the basis of data [2]

Geographical distribution plays a significant role, as shown in Figure 1, since certain regions show stronger dedication to green technology than others. The prevalence of green technology adoption in locations such as Atyrau, Karaganda, and the East Kazakhstan regions highlights regional inequalities and indicates specific areas for focused governmental interventions. Lower adoption rates in regions such as Almaty, Kyzylorda, Turkestan, Mangystau, North Kazakhstan, Akmola, Shymkent, and Almaty suggest the need for more measures to encourage the use of green technology.

The Turkestan region has a notable, although relatively small, impact on the implementation of green technology in Kazakhstan. Out of over 200 industrial businesses in the nation, only 13 enterprises in the Turkestan area have adopted green technology. The region ranks 14th out of 17 regions surveyed, as indicated in Figure 2, indicating a requirement for more efforts to promote sustainability practices.

The low adoption rate of green technology in Turkestan is even more pronounced when examining the specific sorts of technologies being used. Among the eight areas of green technology, only energy consumption, waste management, and renewable energy sources are currently utilised in the region. This selective adoption indicates a focused strategy on sustainability, emphasising specific areas with notable environmental effects.

In Turkestan, green technology applications focus on lowering greenhouse gas emissions and enhancing resource efficiency. The accomplishments of Green Technology Industries LLP, JV Inkai LLP, and Kazecosolutions LLP provide concrete outcomes. A significant reduction in environmental pollutants by 65,000 metric tonnes, a drop in greenhouse gas emissions by 1.99 metric tonnes annually, and a big cut in oily waste by 80,000 metric tonnes per year demonstrate a focused attempt to lessen the environmental impact [2].

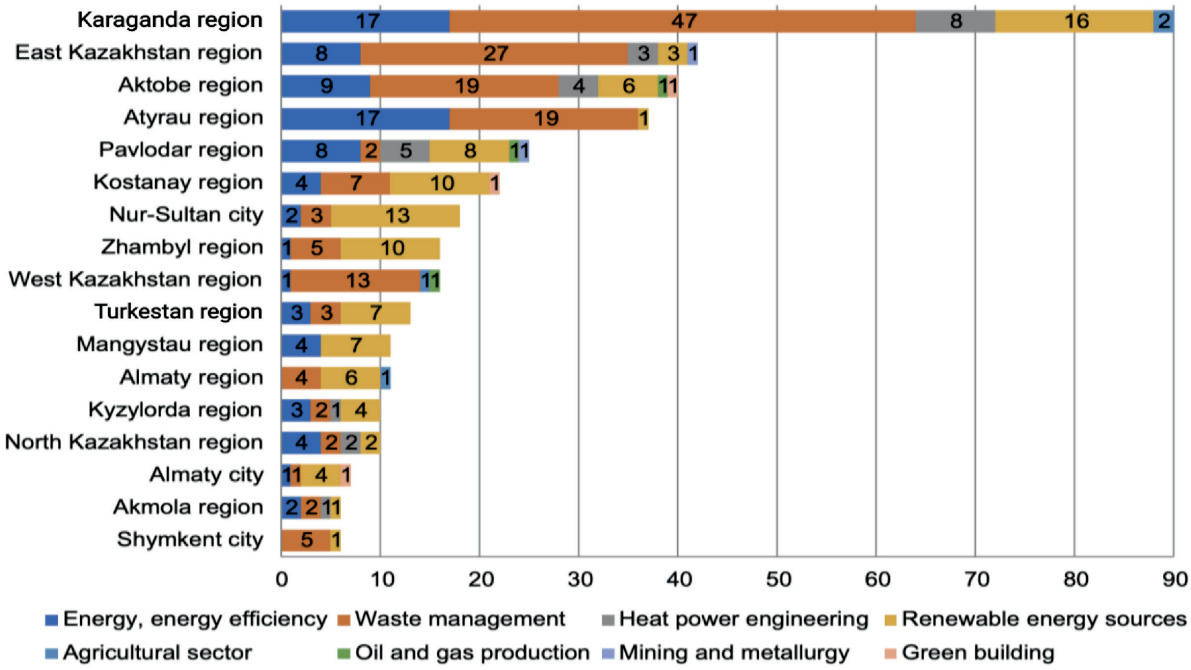

Figure 2. Regional ranking on type of green technologies use
Source: compiled on the basis of data [2]

The statistics obtained indicate that Turkestan has the potential to become a centre for sustainable practices by utilising specific technology to tackle significant environmental issues. Reducing GHG emissions supports global climate objectives, while measures to lower environmental contaminants and manage waste help create a more sustainable and environmentally responsible industrial landscape in the region [3].

An examination of the Turkestan region's use of green technology indicates potential benefits as well as areas that need enhancement. The region has made progress in lowering its environmental impact through certain technologies. However, the limited participation of businesses in green practices suggests a need for wider involvement and a more thorough implementation of sustainability measures.

Literature review

What is a green building?

Yudelson J. defines green building as a high-performance property that emphasises reducing environmental impact and enhancing human health [3]. Emphasising decreased energy and water use is in line with the core concepts of conserving resources. This concept highlights a comprehensive approach, suggesting that green buildings excel not only in energy efficiency but also favourably impact the well-being of residents and the greater ecology. Meanwhile, Kibert's definition combines green building with sustainable construction principles [6]. Kibert highlights the use of sustainable practices across the whole life cycle of green buildings, defining them as healthy structures constructed in a resource-efficient way [8]. "Resource-efficient" refers to a comprehensive approach that takes into account materials, energy, and processes, highlighting the need to achieve a balance between the built environment and the natural world. This approach acknowledges the interdependence between ecological and human-centred issues. The International Energy Agency (IEA) expands the term by emphasising energy and water efficiency, decreased material use, and enhancements in health and the environment. The combination of health and environment highlights the broadening range of green construction beyond resource efficiency. The IEA's definition acknowledges that green construction should enhance the health and well-being of residents and tackle broader environmental issues [12]. On the other hand, Dwaikat and Ali focus on the economic aspect of green buildings by examining the additional costs involved. They describe green buildings as constructions that involve additional costs but provide environmental and societal advantages. They prioritise the economic side, recognising that investing in green features initially leads to long-term benefits in sustainability and social well-being [7]. This definition incorporates an economic perspective into the discussion, emphasising the financial aspects involved in assessing green buildings and distinguishing them from conventional construction. In addition, Zuo and Zhao provide a research-focused viewpoint on defining green buildings. They analyse the present state and future plans of green building research in their work. Green buildings are defined as issues that are always being studied and improved. Zuo and Zhao emphasise the evolving nature of green construction methods, demonstrating a dedication to continuous improvement and advancement informed by the most recent research. This definition of green buildings highlights them as structures that adapt to new information and technological progress in the sector [4].

Who are the providers of certification/services for green construction?

Certification systems are essential for evaluating and acknowledging sustainable construction practices on a worldwide scale. Multiple certification providers have arisen, each with distinct features and an emphasis on certain regions.

1. LEED Systems

The Leadership in Energy and Environmental Design (LEED) certification system is a standard for environmentally friendly construction in the United States. Kibert (2004) stated that LEED has gained widespread recognition and control, certifying a substantial number of new buildings in the United States [8]. It has a 90% market share in certified commercial buildings. LEED has achieved worldwide acknowledgment through the LEED International Roundtable, which ensures uniformity across 21 nations by customising rating systems to local circumstances. LEED's extensive presence in 133 countries showcases its worldwide impact [13].

2.The Green Building Council Australia (GBCA)

The Green Star rating system, originating in Australia, is a significant certification provider. Zuo and Zhao (2014) provide a comprehensive overview of its wide range of evaluation tools, which encompass many project categories including school, workplace, and healthcare [4]. The system has nine categories: management, indoor environmental quality, energy, transport, water, material, land use and ecology, emissions, and innovation. GBCA certifies buildings at three levels: 4 Star (Best Practice), 5 Star (Australian Excellence), and 6 Star (World Leader). Originating in Australia, this method has quickly gained popularity in other projects around Europe [14].

3. China's Green Building Label

China implemented its own certification system known as the Green Building Label, as outlined by Zuo and Zhao (2014). The Ministry of Housing and Urban–Rural Development oversees a system that evaluates buildings based on six categories: land efficiency, energy utilisation, water efficiency, material utilisation, interior environmental quality, and operation management. Points are allocated based on design aspects, with extra points awarded for originality, marketability, and overall advantages. This approach stands out for incorporating national criteria into the scoring process and adjusting to local climatic and economic factors.

4. Other Global Certification Providers

Several certification providers from different nations or regions contribute to the worldwide green building evaluation environment. The BREEAM from Britain, DGNB from Germany, and CASBEE from Japan are tailored to their specific regions. These systems, while varied, have similarities in being voluntary, addressing various sustainability elements, and utilising qualified specialists for evaluations [4].

Methodology

The research methodology used a thorough and systematic technique to gather, analyse, and combine secondary data from reliable sources, including Google Scholar, Scopus, and Web of Science. Furthermore, we used papers from official organisations such as Turkestan's strategic development plans, the World Data Bank, and OECD reports. Highlighted information on sustainable development in Kazakhstan and detailed studies on the strategic development of Turkestan city.

The literature evaluation concentrated on comprehending the worldwide and local context of green building principles, effects, and advantages, establishing the groundwork for the research.

Analysed the collected secondary data extensively to pinpoint the main themes, trends, and issues associated with green building concepts. Used analytical methods such as community impact diagrams, cost-benefit analysis, and case scenario analysis to understand the practical consequences of green technology in Turkestan.

Diagrams were created using information from books and publications to visually show the strategic selection of green technologies and their potential impact on sustainable development in Turkestan.

Discussion of results

Turkestan's strategic development plans for 2025 encompass several aspects, including infrastructure, housing, transportation, sports, law enforcement, and cultural heritage protection. The programmes seek to attain full water supply coverage and 85.4% gas supply coverage while also decreasing the degradation of electrical networks. Housing projects entail the development and management of 4.9 million square metres, comprising 1.4 million square metres of credit and rental housing. Transportation enhancements involve building regional highways and a high-speed railway linking Turkestan, Shymkent, and Tashkent. Additionally, there are plans to improve the local and national road network through significant road repairs and reconstructions

covering a total of 2,300 km. Plans include constructing sports and recreation facilities such as tennis centres, ice palaces, and equestrian complexes to increase population participation in physical activities to 45%. Law enforcement and public safety are emphasised by building police department buildings and fire stations [12].

Simultaneously, there are substantial modernization projects taking place in residential structures, with 3.3 billion KZT being invested this year to upgrade 101 multi-apartment complexes. The complete plan involves upgrading 240 residential buildings by 2025, costing 4.6 billion KZT, and refurbishing 341 multi-apartment buildings between 2021 and 2025, with a budget of 7.9 billion KZT. The programmes “Rukhani Zhangyru” and “Seven Facets of the Great Steppe” focus on scientific restoration and archaeological study to preserve historical and cultural landmarks. Preserving the area’s valuable heritage involves initiatives like renovating historical sites in Kultobe, enhancing the Azret Sultan museum-reserve, and restoring the mausoleums of Khawaja Ahmed Yasawi and Rabia Sultan Begim, as well as the fortress wall of the Turkestan citadel [12].

Three initiatives are dedicated to restoring historical and cultural sites, which includes conducting archaeological research, as part of the heritage preservation agenda. By 2025, restoration work on 59 sites and 24 archaeological investigations will be finished, expecting a rise in visitation to the primary historical and cultural monument, the tomb of Khawaja Ahmed Yasawi, to 2.3 million. The detailed plans lack particular considerations for environmental consequences, ecological sustainability, and the use of green construction ideas in the development framework. Integrating these components might provide further economic and environmental advantages to the area [12].

The data in Table 2 clearly indicates that incorporating green principles may greatly improve and expand the strategic development plans for Turkestan. The area has always concentrated its expenditures on major building construction. Traditional construction methods have led to issues including noise pollution, air pollution, and higher energy usage. The strategic plans involving seven important areas - education, healthcare, sports and leisure centres, infrastructure development, and tourism attraction places – may all benefit from incorporating green construction techniques [17].

Table 2. Cross-correlation of Strategic Plan of Development of Turkestan with the Conceptual Benefits of Green Buildings and Implementations

Strategic Development Plans for Turkestan (2021-2025)	Positive Impacts of Green Buildings Concept
1. Infrastructure Development: - Roads and railways - Water and sanitation infrastructure - Housing development	- Reduces resource consumption, contributing to environmental conservation. - Enhances energy efficiency, reducing the city's overall carbon footprint.
2. Agriculture and Food Security: - Investment in agricultural projects - Creation of a food belt around Turkestan	- Promotes eco-friendly materials and methods, supporting a healthier living environment.
3. Tourism Development: - Infrastructure for tourism - Cultural and historical site preservation	- Integration of green building principles in tourism facilities attracts environmentally conscious tourists, boosting tourism.
4. Healthcare Improvement: - Construction of new hospitals - Healthcare centres and clinics	- Green healthcare facilities provide healthier indoor environments, contributing to improved public health.
5. Education Enhancement: - Construction of new schools and educational centres - Restoration of historical and cultural sites	- Green school buildings create conducive learning environments, positively impacting students' well-being and performance.
6. Sports and Recreation: - Construction of sports complexes and recreational facilities	- Encourages physical activity and contributes to community well-being.

Strategic Development Plans for Turkestan (2021-2025)	Positive Impacts of Green Buildings Concept
7. Law and Order: - Infrastructure for law enforcement - Fire stations and emergency response centres	- Sustainable buildings often incorporate advanced security features, enhancing the safety of public spaces.
8. Environmental Conservation: - Water conservation projects - Preservation of natural habitats	- Green buildings promote ecological balance by reducing environmental impact and fostering biodiversity.
Source: Compiled by the authors	

Emphasising the building of sustainable and environmentally friendly structures aims to mitigate the negative impacts of traditional construction methods. Education facilities, healthcare establishments, sports and leisure centres, and infrastructure development projects can reduce their environmental impact by implementing green construction methods. Tourist locations, crucial for the economic development of the region, might benefit from implementing environmentally friendly practices in their construction. The main idea is that by investing in community well-being and promoting environmental awareness, the city can experience a positive transformation, leading to a more prosperous and sustainable future in line with the strategic concept's principles.

We have detailed the several benefits that the Turkestan community may get by adopting green technologies and green buildings in Figure 3. The benefits include increased productivity, improved health efficiency, better energy and waste management, superior air quality, reduced ecological impact, enhanced public mental health, more opportunities for outdoor activities, and an overall boost in productivity [17].

Figure 3. Community Impact Diagram
Source: Compiled by the authors

These advantages help create a more sustainable and pleasant urban environment. Implementing green construction principles improves the well-being of the city's population and tackles important concerns with resource use and environmental effects [17]. The good consequences go beyond personal well-being, influencing the community's lifestyle and enhancing the city's overall appeal.

Furthermore, the focus on high productivity suggests that green buildings offer favourable conditions for work and everyday tasks, which might enhance economic growth. Enhanced health effectiveness and psychological wellness, along with more outdoor activities, lead to a superior quality of life for inhabitants [17].

The city is adopting green technology ideas to establish itself as a progressive and ecologically aware town. The deliberate use of environmentally friendly architectural principles, as outlined in the chart, pushes Turkestan towards a more sustainable and robust future, showcasing a dedication to both current and future generations.

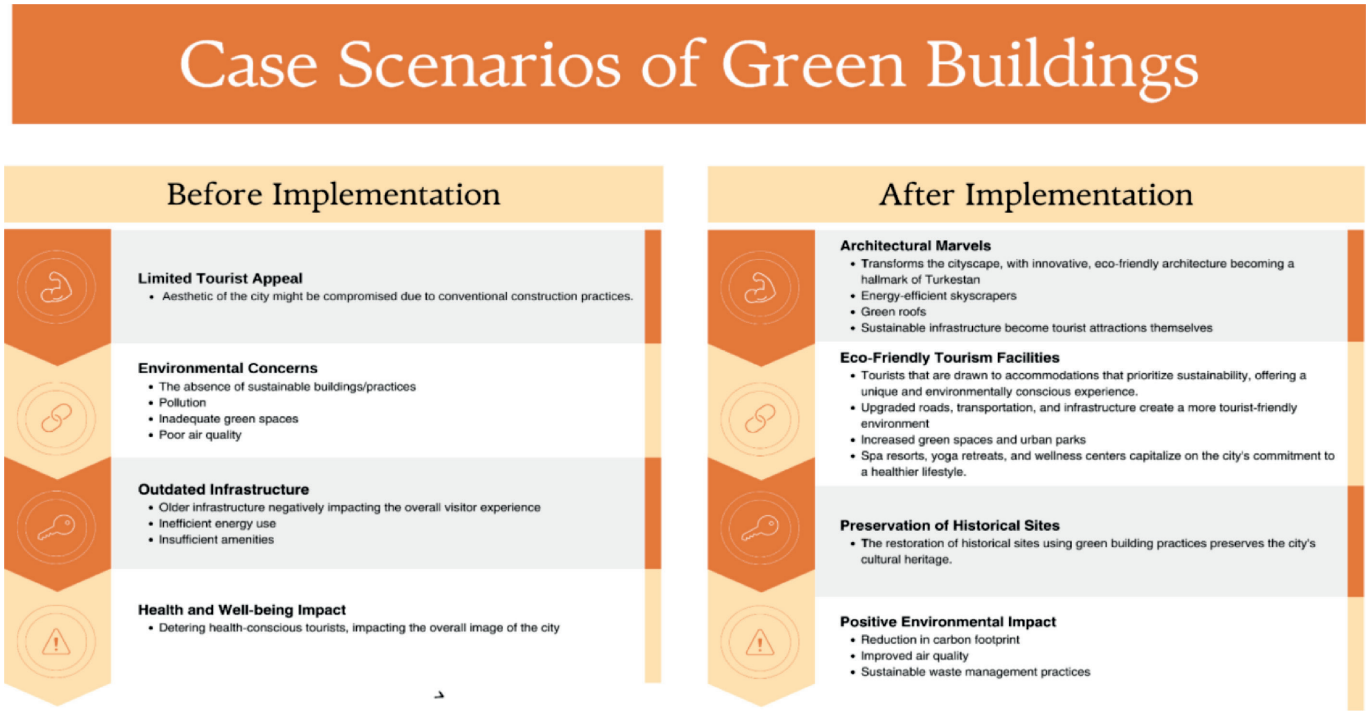

Figure 4. Case-scenarios
Source: Compiled by the authors

Figure 4 illustrates the importance of installing green buildings in Turkestan through before-and-after scenarios. Without implementing green construction principles, the city might experience environmental degradation, higher energy usage, and a less attractive urban landscape, which would discourage tourists [16]. The city experiences a revolutionary journey through the intentional use of green technologies. Green buildings in Turkestan not only reduce environmental effects but also enhance the city's visual appeal. Tourists are attracted to a cityscape that is cleaner, more sustainable, and has improved air quality, enough green areas, and lower energy use. This not only boosts the city's reputation as an ecologically conscious location but also helps stimulate the region's economy by drawing more tourists [15]. Transitioning to green buildings is crucial for transforming Turkestan into an appealing and sustainable tourism spot, in line with current global trends, and promoting lasting growth and resilience for the city.

Conclusion

Our research emphasises the crucial necessity for increased efforts in implementing environmentally friendly practices, specifically in the area of green buildings, to promote sustainable development in Kazakhstan, focusing on the city of Turkestan. Our analysis uncovered a notable deficiency in the implementation of green technology among businesses in Kazakhstan, despite the presence of national environmental strategies and programmes. Only a small percentage of organisations are actively taking into account their carbon footprints or environmental risks.

Turkestan City has been slow to adopt green technology, with just 13 out of over 200 businesses in the area using sustainable practices. We support incorporating the notion of green buildings in conjunction with the city's Development Plan for 2021-2025, which emphasises significant expenditures on construction projects. This alignment offers economic advantages and establishes Turkestan as a leader in sustainable urban development.

We demonstrated how the city's attractiveness to tourists may be enhanced by integrating green technologies into buildings, using detailed example scenarios. The comparisons before and after highlighted the favourable influence on the city's appearance and environmental standards.

Our research explored the wider community effects of green technology, focusing on enhancements in health, mental well-being, and overall public health standards. The potential improvements in productivity underscore the various advantages that green buildings may provide to the citizens of Turkestan.

Turkestan must embrace green buildings to advance sustainability and serve as a model for other towns in Kazakhstan. The results of our study give practical guidance for municipal councils, administrations, local hotels, and construction businesses on how to successfully use green technologies. Turkestan is on the verge of significant development, and adopting green buildings is crucial for a sustainable and successful future.

REFERENCES:

1. OECD Addressing Industrial Air Pollution in Kazakhstan: Reforming Environmental Payments Policy Guidelines. OECD Green Growth Studies. 2019. [Electronic resource]. – URL: https://doi.org/10.1787/0e04ea86-en
2. Abdildin Y.G., Nurkenov S.A., Kerimray A. Analysis of green technology development in Kazakhstan. //International Journal of Energy Economics and Policy. – 2021. – No. 11(3), – P. 269-279.– DOI:10.32479/ijeep.10897
3. Yudelson J. The green building revolution. Island Press. 2010. [Electronic resource]. – URL: https://islandpress.org/books/green-building-revolution
4. Zuo J., Zhao Z. Y. Green building research-current status and future agenda: A review. // Renewable and Sustainable Energy Reviews. – 2014. – No. 30, - P. 271-281. – DOI: 10.1016/j.rser.2013.10.021
5. Laustsen J. Energy efficiency requirements in building codes, energy efficiency: Policies for new buildings. IEA Information Paper. 2008. [Electronic resource]. – URL: https://www.iea.org/reports/energy-efficiency-requirements-in-building-codes-policies-for-new-buildings
6. Kibert C.J. Sustainable construction: green building design and delivery. 2016. [Electronic resource]. – URL: https://www.amazon.com/Sustainable-Construction-Building-Design-Delivery/dp/0470904453
7. Dwaikat L.N., Ali K.N. (2016). Green buildings cost premium: A review of empirical evidence. // Energy and Buildings. – 2016. – No. 110, – P. 396-403.
8. Kibert C.J. Green buildings: an overview of progress. // Journal of Land Use & Environmental Law.- 2004. - No. 19(2), – P. 491-502.
9. Nelson A.J., Rakau O., Dörrenberg P. Green buildings: a niche becomes mainstream. Deutsche Bank Research. – 2010. – P. 3-22.
10. Green buildings can reduce city temperatures by up to 2°C, study shows. World Economic Forum. 2022. [Electronic resource]. - URL: https://www.weforum.org/agenda/2022/02/green-buildings-can-boost-productivity-well-being-and-health-of-workers/
11. Правительством одобрен Комплексный план социально-экономического развития Туркестанской области на 2021-2025 годы. [Электронный ресурс]. - Режим доступа: https://primeminister.kz/ru/news/pravitelstvom-odobren-kompleksnyy-plan-socialno-ekonomicheskogo-razvitiya-turkestanskoy-oblasti-na-2021-2025-gody-155253
12. National recovery plan / 2. Physical infrastructure and Green Transition / Renovation of buildings and air protection – Policies – IEA. 2022. [Electronic resource]. -URL:https://www.iea.org/policies/13623-national-recovery-plan-2-physical-infrastructure-and-green-transition-renovation-of-buildings-and-air-protection?s=1
13. Suzer O. A comparative review of environmental concern prioritization: LEED vs other major certification systems. //Journal of environmental management. – 2015. – No. 154, – P. 266-283.
14. Yamany El., Afifi S., Hassan A. Applicability and implementation of US Green Building Council Rating System (LEED) in Egypt (A longitudinal study for Egyptian LEED certified buildings). // Procedia Environmental Sciences, – 2016. – No. 34, – P. 594-604.
15. Hou H., Wu H. Tourists' perceptions of green building design and their intention of staying in green hotel.// Tourism and Hospitality Research. – 2021. – No. 21(1), – P. 115-128.
16. Pan S.Y., Gao M., Kim H., Shah K.J., Pei S.L., Chiang P.C. Advances and challenges in sustainable tourism towards a green economy. //Science of the Total Environment. – 2018. – No. 635, – P. 452-469.
17. Ries R., Bilec M.M., Gokhan N.M., Needy K.L. (2006). The economic benefits of green buildings: a comprehensive case study. // The engineering economist. – 2018. – No. 51(3), – P. 259-295.

СТРАТЕГИЧЕСКИЙ ВЫБОР ЗЕЛЕНЫХ ТЕХНОЛОГИЙ ДЛЯ УСТОЙЧИВОГО РАЗВИТИЯ КАЗАХСТАНА: КОМПЛЕКСНЫЙ АНАЛИЗ КОНЦЕПЦИИ ЗЕЛЕНЫХ ЗДАНИЙ ДЛЯ ГОРОДА ТУРКЕСТАН

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Аннотация: *Сегодня внедрение зеленых технологий в Казахстане для повышения энергоэффективности и устойчивости операций в бизнес-секторе в ответ на растущий глобальный тренд к экологически осознанным практикам является актуальным. Цель данного исследования направлена на анализ движения в сторону зеленых технологий и их важной роли в содействии устойчивому развитию в современных экономиках. В центре нашего исследования стоит концептуализация и внедрение зеленых зданий, распознаваемых как экологически дружественные сооружения и важные коммерческие активы, способствующие устойчивому развитию бизнеса. Анализируя данные по всему миру, мы изучаем более широкие последствия принятия принципов зеленого строительства, подчеркивая их способность создавать экономические выгоды и поощрять устойчивое поведение.*

Туркестан, обладая потенциалом для значительного развития в качестве ведущего туристического направления, был выделен как важный и выгодный город для внедрения принципов зеленого строительства в планы расширения. Наш анализ подчеркивает стратегическое соответствие между инициативами по развитию Туркестана и внедрением зеленых зданий в городе. Экологически устойчивые архитектурные решения в Туркестане, совместно с интеграцией культурных, исторических, природных и современных компонентов, делают его образцом устойчивого городского развития и повышают его привлекательность для иностранных туристов. Были рассмотрены разнообразные преимущества, которые зеленые здания предоставляют различным заинтересованным сторонам, таким как государственные органы, предприятия, отели и туристические направления. В то время как привлекательность города и практические преимущества концепций зеленой архитектуры для привлечения иностранных туристов подчеркивают уникальный опыт, сочетающий в себе архитектурную инновацию с историческим наследием Туркестана. Исследование рекомендует стратегический выбор зеленых технологий, в частности внедрение принципов зеленого строительства, для усиления статуса Туркестана как ведущего туристического направления в Казахстане.

Ключевые слова: *зеленые здания, устойчивое развитие, стратегическое планирование, привлекательность международного туризма, устойчивые инициативы Казахстана, экономические выгоды.*

ҚАЗАҚСТАННЫҢ ТҰРАҚТЫ ДАМУЫ ҮШІН ЖАСЫЛ ТЕХНОЛОГИЯЛАРДЫ СТРАТЕГИЯЛЫҚ ТАҢДАУ: ТҮРКІСТАН ҚАЛАСЫ ҮШІН ЖАСЫЛ ҒИМАРАТТАР ТҰЖЫРЫМДАМАСЫН ТАЛДАУ

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Аңдатпа. *Қазіргі кезде Қазақстанда жасыл технологияларды енгізу экологиялық тұрғыдан саналы тәжірибелердің өсіп келе жатқан жаһандық трендіне жауап ретінде бизнес сектордағы энергия тиімділігі мен жұмыстарды тұрақты жақсарту үшін маңыздылығы артып келеді. Бұл зерттеудің мақсаты жасыл технологияларға қарай қозғалысты және олардың қазіргі заманғы*

экономикалардағы тұрақты дамуға жәрдемдесудегі маңызды рөлін талдау. Біздің зерттеулеріміз бизнестің тұрақты дамуына ықпал ететін экологиялық таза құрылымдар және маңызды коммерциялық активтер ретінде танылған жасыл ғимараттарды концептуализациялауға және енгізуге бағытталған. Дүние жүзіндегі деректерді талдау арқылы жасыл құрылыс қағидаттарын қабылдаудың кеңірек салдарын зерттейміз, олардың экономикалық пайда жасау және сұранысты тұрақты ынталандыру қабілетін атап өтеміз.

Туризмнің жетекші бағыты ретінде айтарлықтай даму әлеуеті бар Түркістан жасыл құрылыс қағидаттарын кеңейту жоспарларына енгізу үшін маңызды және тиімді қала ретінде анықталды. Біздің талдау Түркістанды дамыту бастамалары мен қаладағы жасыл ғимараттарды іске асыру арасындағы стратегиялық сәйкестікті көрсетеді. Түркістандағы экологиялық тұрақты сәулет шешімдері мәдени, тарихи, табиғи және заманауи компоненттерді біріктірумен бірге оны тұрақты қала дамуының үлгісіне айналдырып, шетелдік туристер үшін тартымдылығын арттырады. Жасыл ғимараттардың мемлекеттік мекемелер, бизнес, қонақ үйлер және туристік бағыттар сияқты әртүрлі мүдделі тараптарға беретін түрлі артықшылықтары қарастырылды. Қаланың тартымдылығы мен шетелдік туристерді тартуға арналған жасыл сәулет концепцияларының практикалық артықшылықтары архитектуралық инновацияларды Түркістанның тарихи мұрасымен біріктіретін бірегей тәжірибені көрсетеді. Зерттеу Қазақстанның жетекші туристік бағыты ретінде Түркістанның мәртебесін арттыру үшін жасыл технологияларды стратегиялық таңдауды, әсіресе жасыл құрылыс қағидаттарын енгізуді ұсынады.

Түйін сөздер: *жасыл ғимараттар, тұрақты даму, стратегиялық жоспарлау, халықаралық туризмнің тартымдылығы, Қазақстанның тұрақты бастамалары, экономикалық пайда.*