

# The human factor in the development of a green economy in the Kyrgyz Republic

Zulfiya Tokhtyyeva<sup>1,\*</sup>, Indira Kurbanova<sup>1</sup>, Aygul Abdyzhusupova<sup>1</sup>, and Viktor Savin<sup>2</sup>

<sup>1</sup>Kyrgyz State Technical University named after I. Razzakov, Higher School of Economics and Business, Department of Economics and Enterprise Management, Bishkek, Kyrgyz Republic

<sup>2</sup>Bishkek State University named after K. Karasaev, Faculty of Economics and Finance, Department of Finance, Banking and Taxation, Bishkek, Kyrgyz Republic

**Abstract.** The paper explores the importance of human capital as the most important factor in the development of a green economy of the Kyrgyz Republic. A green economy is in line with the new concept of sustainable development, thanks to its ability to improve the bio-environment, increase resource efficiency and take care of future generations. Although there are many studies on the concept and implementation of a green economy, the practical issues associated with it are not completely clear, including the importance of macroeconomic sustainability. The purpose of this study is to identify the importance of human capital in ensuring the development of a green economy of the Kyrgyz Republic. To achieve the objectives of the study, a comprehensive analysis was applied, which has shown a direct and close relationship between the level of human capital and the potential for the development of a green economy. This study examines the experience of developed countries and the competitive advantages of developing a green economy through the trinity of sustainability of the development of economy, society and environment, with the priority of investing in human capital. This paper shows that human capital is an important factor in the growth of a green economy and sustainable development for the Kyrgyz Republic.

## 1 Introduction

Today, the problem of environmental and economic security of the world and socio-economic development of each individual country must be addressed from the standpoint of conscious thinking, adjusted towards the path of sustainable development. Modern society is faced with the need to implement the Law of Heritage [1], that is, to prevent and eliminate external and internal economic threats, taking into account the needs of present and future generations. More and more people are interested in a green economy. However, due to the short time that has passed since the emergence of the term “green economy”, there is no uniform meaning and theoretical justification for this phenomenon.

Specialists, scientists and experts in their fields of knowledge approach this problem from their own positions. For example, philosophers believe that the solution to this problem lies through the harmony of nature and society in the development of the ecological consciousness

---

\* Corresponding author: [bakuila\\_sj@kstu.kg](mailto:bakuila_sj@kstu.kg)

of mankind; geographers – through the interaction of natural and anthropogenic factors affecting the state of the environment; political scientists and sociologists – through the establishment of moral and ethical principles, norms and rules for the life of society; environmentalists – by creating the best conditions for human life, economists – by creating new jobs and industrial and economic relations that ensure the effective functioning of goods and services. In general, all experts believe that a green economy should cover the sustainability of development, increasing satisfaction with the level of life, both in the present and in the future [2].

The research topic is being implemented as part of the implementation of the National Development Strategy of the Kyrgyz Republic for 2018–2040 [3], the concept of a green economy in the Kyrgyz Republic “Kyrgyzstan is a country of a green economy” [4].

The aim of the study is to develop theoretical and methodological approaches to the development of a green economy and to identify the importance of the human factor in ensuring its development in the Kyrgyz Republic. The scientific novelty lies in the identification of the high importance of the human factor for the development of a green economy in the Kyrgyz Republic and the compilation of a model of green thinking for the national sustainable development.

The authors’ hypothesis of the presented study is based on the fact that the human factor is a significant component for the national development of a green economy and in the world as a whole.

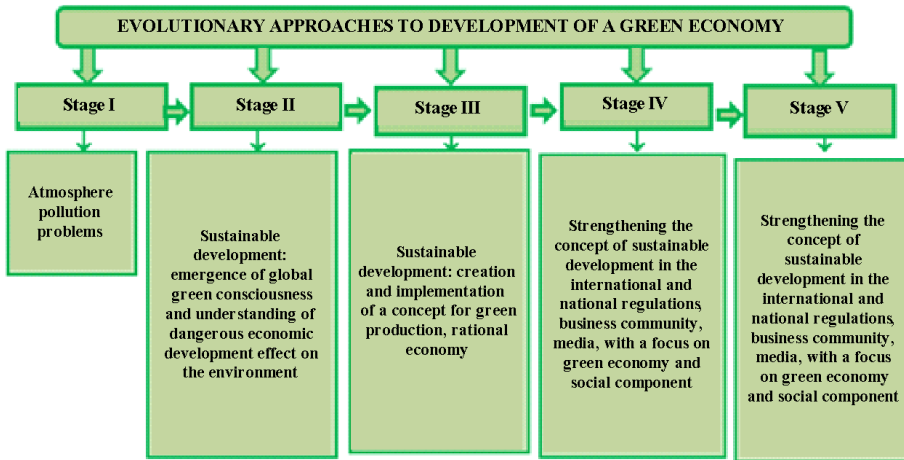
## **2 Materials and methods**

The concept of a green economy is relatively new in economics. The formation of a green economy began in 1955 and continues its evolutionary, phased development to the present. Meantime, each stage has its own prerequisites, characteristics and understanding of the interdependence of the economy and ecology. In general, an analysis of international agreements in the field of ecology demonstrates an evolutionary approach from their purely declarative content and prohibitive measures to specific tools of economic responsibility, the formation of international financial mechanisms to ensure the implementation of decisions made [5]. As a result of the collected materials, the authors have schematized the main evolutionary approaches to the development of a green economy (Fig. 1).

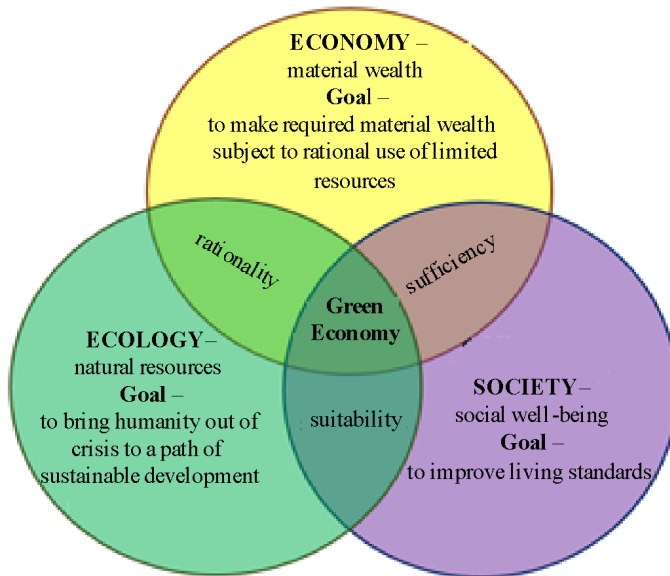
A green economy ensures sustainable, carbon-neutral economic growth while comprehensively addressing social equity issues. A green economy should be not only efficient, but also fair. In general, the concept of a green economy cannot replace the concept of sustainable development; on the contrary, it puts the values of sustainable development at the forefront [6] (Fig. 2).

It is now increasingly recognized that achieving sustainability depends almost entirely on building the “right” economy. In recent decades, humanity has created new wealth based on the anti-environmental model of a brown economy. In general, the green economy includes and develops mixed strategies in all three areas: environmental, social and economic sustainable development goals to achieve the best results.

The issue of the structural and technological support of a green economy is debatable. Often, this economy involves the production of various types of cleaning equipment, the processing or disposal of secondary resources and waste, the provision of environmental services, etc. Although, the world experience of transforming the processes of ecologization of the economy can ultimately be effective only at the macrolevel [8].



**Fig. 1.** An evolutionary model for the formation and development of a green economy. *Source:* compiled by the authors.



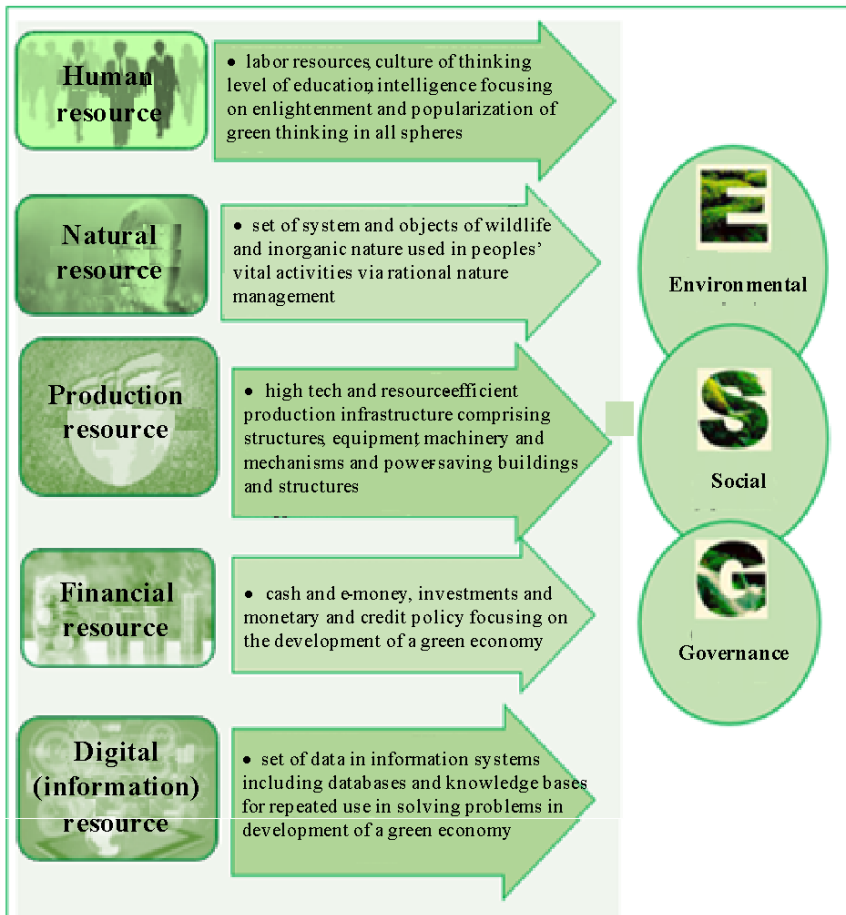
**Fig. 2.** A green economy as a tool for implementing sustainable development. *Source:* compiled by the authors using [6, 7].

Macroeconomic and sectoral approaches to the formation of a green economy are used in UN documents, World Summits and other documents and have become a priority in political debates. For example, in the conceptual documents of European development, a green economy is considered as an environmental and resource policy, in particular: energy; greenhouse gas emissions and ozone-depleting substances; air quality and pollution; greenhouse gas and air pollutant emissions by the transport sector; sustainable rational consumption and production; chemicals; biodiversity and land use [7].

Today it is important to agree on the basic terms and definitions of a green economy, criteria and indicators, including definitions of green technologies or industries. Such definitions and criteria are important for prioritizing public funding, research, green procurement, seeking international financial and technical support, attracting green technologies, assessing progress and other objectives of the transition to a green economy.

At present, it is necessary to come to an agreement on the main terms, definitions, indicators and criteria of a green economy and technologies. This is necessary to select the benefits of state and external financial and technical support, research, green procurement, to attract innovative green technologies, to assess the progress and other tasks on the path to the development of a green economy.

A brief review allowed presenting the authors' definition: "Green economy is a direction of economic science focused on meeting the unlimited needs of people for goods and services, with the help of limited Earth's resources, preventing and eliminating external and internal economic and environmental threats, taking into account interests of current and future generations" [9].



**Fig. 3.** Resource elements of sustainable development of a green economy. Source: compiled by the authors using [4, 10].

Against the background of this definition, a green economy works as a model that includes constructive techniques and ways to achieve harmonization between sustainable economic

development and the actual limitation of world resources. To implement this model of economic development, five types of resources are needed, which are considered in Fig. 3 with a significant priority on human potential, since it is the effective management of other resources by a person that ensures the rationality of their use, which will lead to the sustainable development of a green economy.

In general, all scientific and technological revolutions and the greatest innovative changes in society were made on the basis of the accumulation of human knowledge in a certain historical period of economic development [10].

In recent years, the state of the ecological environment around the world has been deteriorating, non-renewable natural resources are declining, and man-made and environmental disasters are increasingly occurring, indicating that the time has come to change the consumer thinking of the population of the entire planet. For this, it is necessary to change the minds of people, which is called green thinking, based on knowledge about the vulnerability of the eco-environment and limited natural resources, as well as the transition to innovative green technologies in the vital activities of society.

### **3 Results**

The Kyrgyz Republic has embarked on the path of developing a green economy, “which leads to an increase in the well-being of people and the strengthening of social justice while significantly reducing risks to the environment, preserving and increasing natural capital, efficiently using resources and stimulating the preservation of the country’s natural ecosystems” [11].

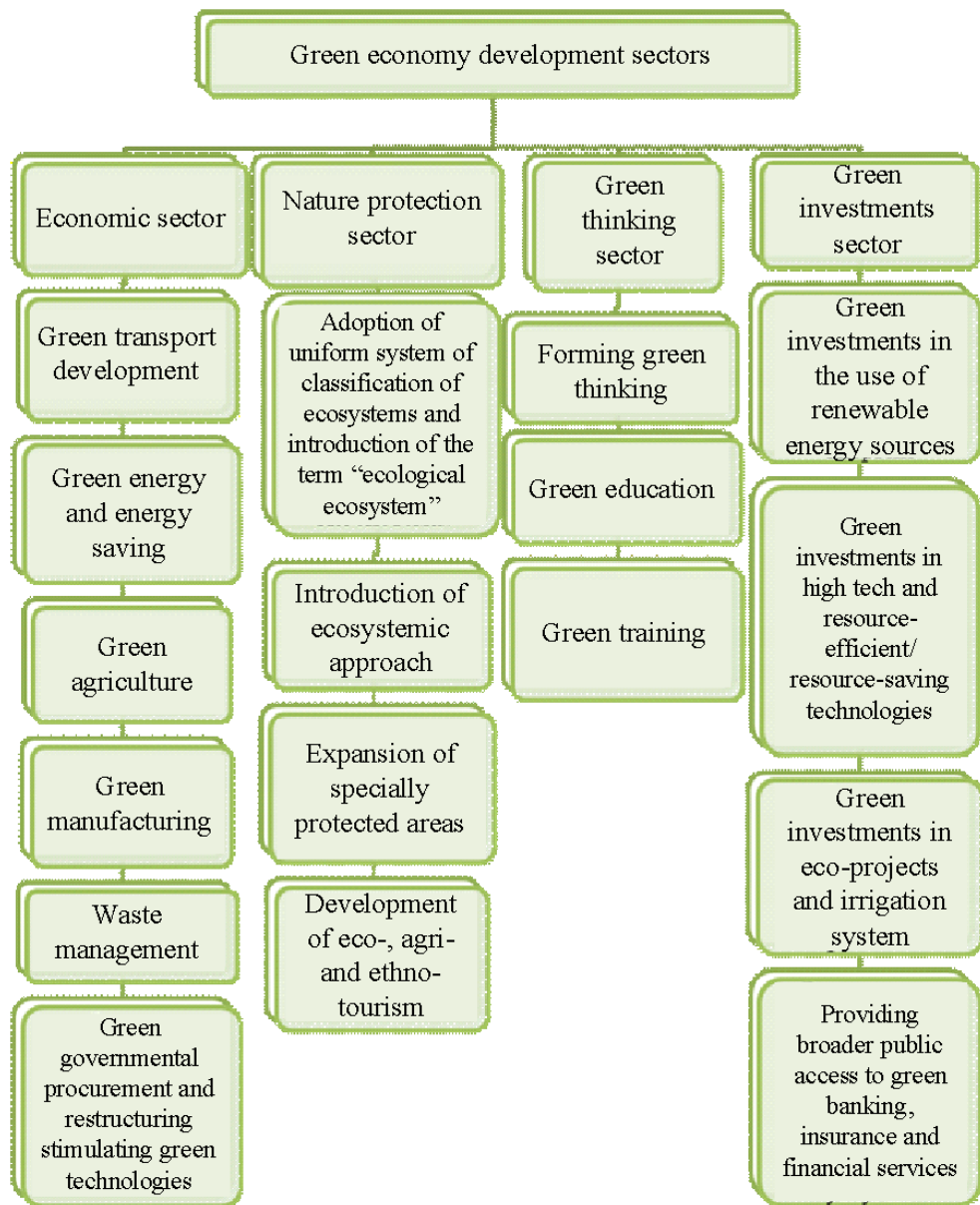
In the concept “Kyrgyzstan – a green economy country”, green directions are proposed by sectors of the country’s development, on the basis of which we have compiled a tree of goals in accordance with the formulated main goal of the study, in order to identify priority sectors that affect the development of a national green economy, the authors also identified divisions to subsectors (Fig. 4).

To identify the significance of the proposed subsectors for achieving the general goal, the authors conducted a sociological study of expert opinions. Based on the experts’ answers, it was found that the main four sectors are the same and the probabilistic values of each of them are equal to 0.25. Equivalent variations were presented for these sectors, so for the first sector there are 6 variations with probabilistic values of 0.042 each, the second and fourth sectors have 4 variations each, where the probabilistic values, according to the experts, are equal to 0.062 each. As for the third sector, the target tree shows 3 variations with probabilistic values of 0.07 [12].

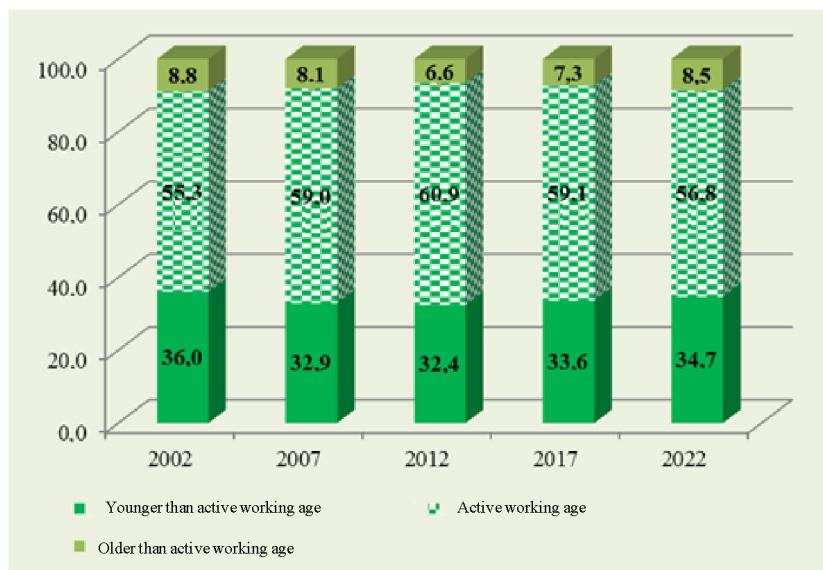
Summing up this sociological research, it should be noted that the goal tree presented by the authors shows the high importance of the human factor in the development of a green economy of the Kyrgyz Republic through the formation of green thinking, which creates an “ecological lifestyle and is realized through the environmental behavior of people who create the eco-business industry and a new favorable environmental environment” [13].

An analysis of the population by main age groups presented in Fig. 5 allowed concluding that the younger “generation of Kyrgyzstanis has a chance to preserve the unique nature and biodiversity, make people healthy, prosperous and happy through the practical implementation of the principles of a green economy in Kyrgyzstan” [14] (Fig. 5).

To create effective green thinking in the development of a green economy and in general sustainable development of the Kyrgyz Republic, the authors have compiled a model for the formation of green thinking (see Table 1).



**Fig. 4.** Tree of sustainable development goals for the green economy of the Kyrgyz Republic. *Source:* compiled by the authors using [4].



**Fig. 5.** Structure of the population of the Kyrgyz Republic by main age groups. *Source:* compiled by the authors using [14].

**Table 1.** Green thinking formation model.

Stage	Type of education, activity	Development of green thinking process	Effect
Stage I – younger than active working age	Home and kindergarten education (preschool age)	Fundamentals of knowledge about the world around us, culture and eco-behavior	Basic formation of green thinking
	School education (school age)	Accumulation of basic knowledge, skills and abilities of green thinking	
Stage II – active working age	Vocational education (youth)	Continued accumulation of knowledge, skills and abilities of green thinking with professional application	Professional formation of green thinking
	Labor activity (adult population)	Development and/or application of new technologies, implying a more economical use of resources  Understanding the consequences of decisions made and responsibility for the preservation or destruction of natural ecosystems	Expanded regeneration of human development through green thinking



Stage III – older than active working age	Pension (old population)	Popularization and training the younger generation for an ecological lifestyle	
---	--------------------------	--	--

*Source:* compiled by the authors

Environmentally minded people can actively promote the idea of a green economy, involving others at the household level: reducing pollution, choosing environmentally friendly goods and services, avoiding excessive consumption, saving resources: water, energy and all non-renewable natural resources.

## 4 Conclusion

In conclusion of the study, it is important to highlight the high importance in the development of a green economy in the Kyrgyz Republic. Actions aimed at instilling green thinking and respect for biological species among the population are aimed at raising public awareness of the value of green economic development by training both in a formal educational context, i.e. in schools, vocational schools and higher education institutions, as well as informal contexts such as museums, nature reserves, parks, websites, informational films or videos and informational materials.

## References

1. J. Maxwell, The 21 irrefutable laws of leadership. Accessed on: June 07, 2023. [Online]. Available: [http://love1.at.ua/publ/drugie\\_propovedniki/tekst/21\\_neoproverzhimyj\\_zakon\\_liderstva\\_za\\_kon\\_nasledija/130-1-0-14389](http://love1.at.ua/publ/drugie_propovedniki/tekst/21_neoproverzhimyj_zakon_liderstva_za_kon_nasledija/130-1-0-14389)
2. Yu.V. Oleinikov, T.V. Borzova, Cent. Glob. **3** (2016)
3. National Development Strategy of the Kyrgyz Republic for 2018-2040. Accessed on: June 07, 2023. [Online]. Available: <https://mfa.gov.kg/uploads/content/1036/3ccf962c-a0fc-3e32-b2f0-5580bfc79401.pdf>
4. The concept of green economy in the Kyrgyz Republic “Kyrgyzstan is a green economy country”. Accessed on: June 07, 2023. [Online]. Available: <http://cbd.minjust.gov.kg/act/view/ru-ru/83126>
5. A.A. Lagutenkov, D.G. Rodionov, Bul. Acad. Knowl. **49(2)**, 133-142 (2022)
6. Resolution adopted by the UN General Assembly on September 25, 2015 “Transforming our world: the 2030 Agenda for Sustainable Development”. Accessed on: June 07, 2023. [Online]. Available: <https://sdgs.un.org/ru/2030agenda>
7. Towards a green economy in Europe. EU environmental policy targets and objectives 2010—2050. European Environment Agency, Copenhagen, 2013. Accessed on: June 07, 2023. [Online]. Available: <https://www.eea.europa.eu/publications/towards-a-green-economy-in-europe/download>
8. P.V. Savchenko, National Economy (Moscow, 2018)
9. Z. Kh. Tokhtieva, A.N. Bigaliev, Euras. Sci. Assoc. **5-3(75)**, 181-184 (2021)
10. I. Kh. Kurbanova, V.I. Guseva, Z.Kh. Tokhtyeva, Bul. Kyrgyz State Univ. Const., Transp. Archit. **2(72)**, 286-291 (2021)
11. Program for the development of green economy in the Kyrgyz Republic for 2019-2023 Accessed on: June 07, 2023. [Online]. Available:



<https://mineconom.gov.kg/froala/uploads/file/91827e3f83f5a04a78e2dc827b7ef37f9a69b383.pdf>

12. T.Ya. Danelyan, *Econ., Stat. Inf.* **1** (2015)
13. L.A. Zhuravleva, E.V. Zarubina, O.A. Ruschitskaya, *Green thinking as the basis of a green economy*, in Theory and practice of agricultural management, Materials of the All-Russian Scientific and Practical conference dedicated to the 80th anniversary of the birth of Doctor of Economics, Professor A. Pustuev, Yekaterinburg, May 17, 2019, 32-36 (Ural State Agrarian University, Yekaterinburg: 2019)
14. Population of the Kyrgyz Republic. National Statistical Committee of the Kyrgyz Republic. Accessed on: June 07, 2023. [Online]. Available: <http://www.stat.kg/>