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Economic-Geographical Model of Sustainable Development in Manufacturing and Education

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Abstract: The economic and geographical model of product development can be any economically developed state with a favorable geographical position and its role in relation to other developed countries and states. This paper explores various theories and applications of sustainable development in both established and developing nations, including urban and rural settings. It mainly focuses on the local, national, and global politics of implementation, the future of energy and the environment, the role of business, and agricultural sustainability concepts. This comprehensive work suits undergraduate and graduate students studying geography, environmental science, development studies, and social and political sciences. The paper examines the principles of sustainable development in industry and education, specifically in Russia and other nations. Any economically developed state with a suitable geographic location and favorable position among other economically developed countries and states has a favorable economic and geographic model for product development. Education is highly valued in the modern world, as it provides valuable experiences and information across various scientific disciplines, enriching our understanding of the world and human interactions. European countries possess a diversified economy, advanced science, modern technologies, and a skilled workforce. Leading scientific fields, such as aerospace, electronics, microbiology, and biochemistry, play a significant role in production. However, the most critical economic shifts are associated with the advanced development of professional services, information technology, and scientific research.

Keywords: Sustainable development, Resource management, Manufacturing and education, The economic situation of European countries, Environmental and developmental discourse

1. Introduction

Planners, elected officials, and corporate executives are increasingly interested in sustainable development. Research in this field is quickly crossing disciplinary boundaries in academia, attracting the attention of both social and natural scientists. However, it is crucial to clearly understand what this vital concept entails, how it is implemented, and how it impacts people's perception of changes in the natural environment, economy, and society. Exploring Sustainable Development, a significant new volume, examines sustainability across all geographical dimensions, from local to global, and provides a multidimensional introduction to critical areas of study in this subject. It showcases unique contributions by building upon current theories.

Russia is the world's largest country, encompassing nearly one-seventh of the Earth's landmass. Its territory spans 17 million square kilometers across Europe and Asia. The government is bordered by 12 seas belonging to the Pacific and Arctic Oceans in the north and east, and it shares borders with 14 countries, including former Soviet republics, in the west and south.

The population of Russia is approximately 150 million people, with the European part being more densely populated than the rest. The country is home to people of various nationalities, although Russians constitute four-fifths of the population.

Russian culture boasts the names of many prominent individuals, including scientists, writers, composers, and athletes. Figures such as Pushkin, Gagarin, Mendeleev, Lomonosov, and Tchaikovsky are widely recognized (Skopin A.Yu., 2006).

After the dissolution of the Soviet Union, the Russian economy underwent significant changes. It underwent a series of reforms and weathered several global crises, ultimately transitioning into a global market economy.

Presently, Russia holds a prominent position in the world. It possesses abundant natural resources, such as coal, iron, gold, nickel, copper, and aluminum, and is known as one of the largest exporters of oil, gas, and grain. Additionally, the country has significant coal, iron ore, and diamond reserves. Sales of weapons, military spare parts, microelectronics, pharmaceuticals, and nanotechnological products generate revenue. There are over 1,000 manufacturers involved in the design and repair of various types and sizes of ships, with many of them located in Saint Petersburg, Severodvinsk, Nizhniy Novgorod, and the Kaliningrad region. Diesel-electric locomotives, planes, and helicopters are also produced in the country.

The light industry also plays a crucial role in the Russian economy, with textiles, clothing, and leather production being highly developed. Russia's geographical location facilitates interaction with the rest of the world. The combination of favorable natural conditions and diverse resources has introduced innovative elements into production and economic activities (Economic Geography of Russia., 2002).

Russia's economic and geographical position is advantageous in relation to the three major centers of the modern world economy: the USA, Japan, and Europe. Russia acts as a Eurasian bridge connecting these regions. Currently, various transportation projects are underway, including the Hamburg-St. Petersburg-Moscow conveyor bridge, the St. Petersburg-Stockholm cargo and passenger ferry line, and the construction of the Germany-Poland-Kaliningrad motorway. There are discussions about a high-speed railway project, the Berlin-Warsaw-Minsk-Moscow route, which will integrate with the European road network. Efforts are also being made to establish a transport corridor between Russia, Norway, and the Kola Peninsula. Existing transportation routes through Russia are being strengthened, with the Trans-Siberian Railway serving as a vital container route between Southeast Asia and Europe. Market relations are crucial to Tossia's economy (Shishov S.S., 1999).

Education is an essential component of modern life. In Russia, mandatory education consists of three types of schools: primary, secondary, and high schools. Many schools offer foreign languages or other specialized subjects during this stage. If a student decides to continue their studies in high school, which lasts for two years, they can pursue a university education after graduation.

Russia has numerous specialized schools that focus on specific subjects. In addition to public schools, there are also private schools that charge tuition fees. Further education encompasses tertiary education, bachelor's degrees, specialist degrees, master's degrees, and postgraduate degrees. Supplementary education is available for both children and adults.

Regardless of the type of education pursued, it provides valuable experience and knowledge that extend beyond specific fields of study, contributing to a broader understanding of the world and human relationships.

2. Economic-Geographical Model of Sustainable Development in Manufacturing

Currently, the Russian industry comprises various sectors, including oil and gas, precious stone and metal mining and processing, aircraft construction, rocket and space production, nuclear industry, weapons and military equipment production, electrical engineering, pulp and paper industry, automotive industry, transport engineering, light industry, and food industry.

Mechanical engineering is the leading industry in Russia, with significant centers located in Moscow, St. Petersburg, the Urals, the Volga region, and Western Siberia (Morozova et al., 2000). The chemical industry also plays a vital role in the country's overall economic development. It encompasses the extraction of mining and chemical raw materials such as apatites, phosphorites, table and potash salts, sulfur, and other products. The chemistry of organic synthesis includes the production of synthetic rubber, plastics, synthetic resins, and chemical fibers. The world's largest Solikamsk deposit is the source of all potash salts, with fertilizer production in Solikamsk and Berezniki. Most nitrogen fertilizers are produced in the Tula re, Smolenskolyatti, Novgorod, Magnitogorsk, Lipetsk, Nizhny Tagil, and Cherepovets.

Fuel and energy products currently constitute the central part of Russia's exports. Russia ranks second in the world, after the United States, in terms of energy production and third in domestic consumption, following the United States and China. Approximately 40% of Russia's primary energy resources are exported. Key oil companies in Russia include "NK LUKoil," "Tyumen Oil Company," "Tatneft," "Surgutneftegaz," "N.K. Rosneft," "ANC Bashneft," "Sibneft," and "SiDanko." Western Siberia accounts for over 85% of gas production, which is exported to CIS, Baltic, and other countries abroad. The energy potential of the coal industry significantly surpasses that of the oil industry.

The metallurgical industry in Russia encompasses the extraction of metal ores, their enrichment, and metal smelting and production. It includes both ferrous and non-ferrous metallurgy. Copper ores are mined in the Urals, with Norilsk being the largest center for ore mining and copper smelting. Lead-zinc ores are extracted in mountainous areas, primarily in Kuzbass and some in North Ossetia. Large aluminum plants in Bratsk and Krasnoyarsk account for approximately half of Russian aluminum production. Tin ore mining occurs in the Far East and Siberia, with metal smelting occurring in Norilsk.

Agriculture is the primary link in Russia's agro-industrial complex and is characterized by large-scale production. The agricultural land in Russia covers an area of 219.6 million hectares. The main crops cultivated include cereals, sunflower, potatoes, flax, and sugar beet. Regarding grain and leguminous crop production, Russia ranks fourth globally, following China, the USA, and India. Agriculture contributes to around 40% of the gross agricultural output, while animal husbandry, represented by sectors such as meat-dairy and meat-wool, accounts for over 60% (Plisetsky E.L., 2001).

Russia imports machinery, equipment, vehicles, chemical products, consumer goods, and food. Russia's main trading partners are China, Germany, Italy, Poland, Turkey, Great Britain, Switzerland, the USA, and Finland. Russia serves as the primary trading partner for many neighboring countries.

Russia's geographical location is advantageous for global interactions. It is natural conditions and abundant resources allow for the introduction of new elements into economic activities. Market relations hold a significant position in the economy. Furthermore, Russia's economic and geographical position is strategically advantageous in relation to the three major centers of the modern world economy: the USA, Japan, and Europe. Russia acts as a Eurasian bridge connecting these regions. Efforts are being made to strengthen existing transportation routes

across Russia. The Trans-Siberian Railway is the shortest container route between Southeast Asia and Europe.

The countries of Europe have a well-developed diversified economy, advanced science, modern technologies, and a highly qualified workforce. The latest scientific fields, such as aerospace, electronics, microbiology, and biochemistry, play a significant role in production. However, the most significant economic shifts are associated with the advanced development of professional services, information technology, and scientific research. These sectors employ over 70% of the European workforce. European countries have their economic specializations and exchange goods, services, and ideas within Europe and the rest of the world (Gladkiy et al., 2001).

The exchange of goods and services among European countries is intense, and they have achieved economic and political integration. This led to the formation and expansion of the European Union, which now comprises 28 countries with a combined population of over 0.5 billion people (Economic geography of Russia: studies., 2006).

Different regions of Europe vary regarding natural resources, economic activities, and cultural connections. The overall socio-economic development of European countries increases from east to west and south to north.

Western Europe, including the southeastern part of Great Britain, Belgium, the Netherlands, the southern half of Germany, Switzerland, and the northern half of Italy, exhibits particularly high economic development, well-developed territories, and a high standard of living. This region serves as Europe's economic center and produces most European products. A dense network of cities, roads, and industries characterizes it. Generally, Northern and Western European countries are more developed and affluent than Eastern and Southern European countries.

The English Channel and the Pas-de-Calais Straits are the primary maritime crossroads in Europe, connecting the North Sea to the Atlantic Ocean and separating France and Great Britain. A 52.5 km tunnel has been constructed under the English Channel, including beneath the strait's seabed (Gladkiy et al., 2001).

The English Channel is a crucial trade route between Europe and the rest of the world, with over 700 ships navigating through it daily. Along the short stretch of the North Sea coast, several port cities can be found, including Le Havre, Dunkirk, Antwerp, and Rotterdam, which is the largest port in Europe (Azarova L.V., 2005).

Norway is a prominent global power, while the Brent field belongs to Great Britain. The oil produced from the Brent field is a benchmark for world oil prices. Financial news agencies report daily on Brent crude oil prices on the London Stock Exchange.

Bavaria is the only federal state in Germany that has its border signs. It is also known for being the production site of BMW cars and home to one of the wealthiest art galleries in the world, the Pinakothek. German craftsmanship and products have been renowned and valued since the Middle Ages, particularly in areas such as weapons, knives (Solingen), Meissen porcelain, optical devices from Jena, and cars and machine tools in modern times. Notable German figures who have brought glory to the country include the poet Wolfgang Goethe, the composer Johann Sebastian Bach, the philosophers Hegel and Kant, and the geographer Alexander Humboldt (Mironenko N. S.: 2001). Germany is the most economically powerful and populous country in continental Europe. It ranks second, after the United States, in terms of the diversity of industrial products. Germany's expertise lies in producing complex machinery and equipment, automobiles, radio and electronic products, and chemical products, including medicines. Globally recognized brands such as Daimler-Chrysler (Mercedes car), Volkswagen, Siemens, Bayer, and

BASF are highly sought after due to their high quality. The country's agriculture is well-equipped, and its workers are skilled and hardworking, resulting in high yields.

Rome, known as the Eternal City, holds a treasury of European culture. It preserves ancient monuments such as the Forum and the Colosseum and Renaissance palaces. Rome is also home to the Vatican, a mini-state where the Sistine Chapel, painted by Michelangelo, and the residence of the Pope are located. Along the coast, there is a stretch of seaside resorts leading to Naples. Near Naples, one can find the Vesuvius volcano, ancient Pompeii, and the island of Capri. Sicily, an island known for its orange orchards and olive groves, is also home to the active volcano Etna (Gladkiy Yu.N.: 2008).

In summary, European countries possess a well-developed diversified economy, advanced science, modern technologies, and a skilled workforce. Asia, on the other hand, is the largest continent in terms of area. Its diverse natural conditions greatly influence the lives of its people and agricultural practices. Among the economically developed countries in Asia are Japan, the Republic of Korea, and Israel. These nations' diversified economies and scientific and technical capabilities contribute to a high standard of living for their populations. The oil-rich countries of the Persian Gulf also enjoy high incomes. China and India have emerged as economic giants, although the well-being of their residents still lags. Singapore and Taiwan referred to as "young tigers," have experienced rapid economic development.

In the Asian region, Jerusalem is a primary holy site for three religions. It is home to the Wailing Wall, a national shrine for the Jewish people, and the Muslim mosques of Omar and Al-Aqsa. The Holy Sepulchre stands on Golgotha, where Christ was crucified. Israel, a small but distinct country, boasts a high standard of living (Butov V.I.: 2006).

The coast of the Persian Gulf serves as a source of true wealth for the Kingdom of Saudi Arabia and its neighboring countries. The coaPersian Gulf's stal areas and offshore shelves of d significant oil fields account for about a quarter of the planet's total reserves. Oil pipelines connect these fields to ports, from where oil is shipped to numerous countries worldwide. The kingdom has utilized the substantial revenues from oil production and refining, particularly during high oil prices, to finance various social support programs.

Isfahan, known for its magnificent palaces, bridges, and mosques, has been described as "half the world" by an unknown poet. Iran is rich in minerals, especially gas, oil, and metal ores(Gladkiy Yu.N.: 2008).

Japan has become one of the leading industrial powers globally. The country has consciously and purposefully adopted Western technological and managerial achievements over centuries. While Japan did not invent the transistor, it was the first to introduce miniature radios and produce mobile phones with built-in digital cameras.

China, a vast and diverse country in East Asia, has a population exceeding 1.3 billion, accounting for approximately one-fifth of the world's population. The People's Republic of China is the world's largest state and a friendly neighbor of Russia. It ranks first in population, second in the cost of products and services, and third in land area (9.6 million square kilometers). China's retained potential for economic growth is advantageous for Russia, as it is a trading partner. This ensures a stable increase in trade turnover, improved trade structure, and the opportunity to leverage external factors for internal development in both countries. China relies heavily on resources from Russia for its national development, and reciprocally, Russia benefits from this economic partnership (Shanin S.A., 2006).

In conclusion, Russia's favorable economic and geographical position and beneficial cooperation with Europe and Asia form an economic and geographical model for sustainable product

development. Russian companies are interested in entering these markets with sought-after products, technologies, and expertise.

3. Economic-Geographical Model of Sustainable Development in Education

Education is a crucial component of modern life. In Russia, compulsory education encompasses three types of schools: primary, secondary, and senior classes. After completing high school, which lasts two years, students can pursue a university education. Russia has numerous specialized schools that focus on specific subjects. In addition to public schools, there are private schools where education is not free. Higher education in Russia includes secondary vocational education, bachelor's degrees, specialist degrees, master's degrees, and postgraduate studies. Both children and adults have opportunities for additional education.

Knowledge and innovative technologies are critical factors in the country's economic development, with higher professional education playing a vital role. Addressing education issues and establishing the first innovative complex within the education system is essential. This complex involves the creation of scientific and technical programs that require funding from regional authorities in the Russian Federation. To support the formation and development of innovation in higher education, the following measures are necessary:

- Establishing funds for the development of the higher education industry.
- Focusing on the production of Russian technologies.
- Enhancing the efficiency of existing scientific equipment usage and creating innovative complexes to improve the efficiency of the entire high-tech product formation and development cycle.
- Attracting financial resources through consumers of innovative products pro higher education system.

Produces only through these measures can educational, scientific, and innovative complexes facilitate the acquisition of scientific knowledge, implement them through university educational processes, and address practical challenges in the economic and cultural development of the country (Aldakimov A.N., 2017).

In any case, each type of education provides us with valuable experience and knowledge, not limited to a particular scientific field but also expands our understanding of the world and human relationships.

Addressing the aforementioned objectives will enhance the organization of the higher education system to improve the quality of specialist and scientific-pedagogical personnel training and serve as a thriving economic and geographical model for sustainable development in education.

4. Conclusion

The economic and geographical product development model can be implemented by any economically developed state with a favorable geographical position and favorable relations with other developed countries and states.

The North Caucasus Economic Region is often called the "breadbasket of Russia" due to its significant potential for development. Russia's convenient economical and geographical position, coupled with beneficial cooperation with European and Asian countries, serves as an economic and geographical model for sustainable product development. Russian companies have generated interest in entering these markets with sought-after products, technologies, and expertise.

The formation and further development of innovative activities within the higher education system have been based on the following:

- Establishment of funds to foster the growth of the higher education industry
- Emphasis on the domestic production of technologies
- Modernization of the efficiency in utilizing existing scientific equipment and the creation of innovative complexes aimed at enhancing the entire cycle of high-tech product development
- Attracting financial resources through consumers of innovative products generated by the higher education system

Addressing these tasks will contribute to the organization of the higher education system, improve the quality of specialist and scientific-pedagogical personnel training, and serve as a thriving economic and geographical model for sustainable development in education.

References

- Aldakimov A.N. Trends in the development of the modern education system in Russia: historical, pedagogical and social aspects/A.N.Adakimov//Problems of modern pedagogical education.2017. No.57-3.P.3-9.
- Azarova L.V. Economic and social geography of the region: introductory course. Study guide. - Omsk: Publishing house of FGOU VPO OmGAU, 2005. - pp.231–232.
- Butov V.I.: Economic and social geography of the foreign world and the Russian Federation. - M.; Rostov n/A: March, 2006. - pp.45–50.
- Economic and social geography. Textbook for university students. - M.: Vlados, 2003. - 272s.
- Economic geography of Russia: studies (edited by V.I. Vidyapin, M.V. Stepanov). M.: INFRA - M.: Russian Academy of Economics, 2006.
- Economic geography of Russia: studies. / Russian Economy. G.V. Plekhanov Academy of Sciences: ed. V. I. Vidyapin, M.V. Stepanov. 3rd ed. pererab, and add. - M.: INFRA-M, 2008.
- Economic and social geography. Textbook for university students. - M.: Vlados, 2003. - 272s.
- Efremov Yu. V. The Blue Necklace of the Caucasus. - L., Hydrometeoizdat, 1988. - 160 p.
- Eminov Zakir, Zaur Imrani, & Sarkhan Jafarov. (2022). "The Current State of Foreign Trade Relations of the Republic of Azerbaijan." PROCEEDINGS E-BOOK: p. 52.
- Gladkiy Yu.N., Dobroskok V.A., Semenov S.P. Socio-economic geography of Russia: study. - M.: GARDARIKI, 2001
- Gladkiy Yu.N.: Economic and social geography of foreign countries. - M.: Academy, 2008.
- Jafarov, Sarkhan. “New Challenges in Education (Новые Задачи в Образовании).” ООО «Логика+» 2, no. 89 (2023): 7–11. doi:10.31618/ESSA.2782-1994.2023.2.89.350.
- Jafarov S, Aliyev Y. Education Policy and Leadership. International Journal of Innovation and Economic Development. 2022 Jan,7(6):14-23. *CrossRef*
- Khrushchev A.T. Economic and social geography of Russia. - M.: Bustard, 2002. -368s.
- Mironenko N. S. Country studies: Theory and methods: Textbook for universities / N. S. Mironenko. - M.: Aspect Press, 2001. -pp.250–252.
- Morozova T.G., Pobedina M.P., Shishov S.S. Economic geography of Russia: Studies. Handbook for universities. - M.: UNITY, 2000.

- Orekhov S.Ya., Molodkin P.F., Duguyan D.K. On The North-Western Caucasus. - Rostov-on-Don: Publishing House of the Rostov University, 2007. - 29-44 p.
- Plisetsky E.L. Commercial geography. Russia and the world market. 10 km. - M.: AST - PRESS, 2001, pp.25–30.
- Sarkhan Jafarov, & Yusif Aliyev. (2021, November 25). Basic principles of school policy, educational development, and organization of public education systems. International scientific conference "HIGHER EDUCATION IN THE REGIONS: REALITIES AND PERSPECTIVES, Guba, Azerbaijan. https://doi.org/10.5281/zenodo.5831806
- Sarkhan Jafarov, & Zaur Imrani. (2021, July 26). Comparison of the Azerbaijani education system with the U.S. education system (XX-XXI centuries (1960-2015)). "World Science: Problems and innovations" The XVI International Scientific Symposium, East Lansing (Michigan, USA). *CrossRef*
- Shanin S.A.: Economic aspects of Russia's regional development. - Belgorod: BelSU, 2006. - pp.28-32
- Shishov S.S. Economic geography and regionalism. -M.: CJSC Finstatinform, 1999.
- Skopin A.Yu. Textbook on geography. Economic geography of Russia. M.: TK Velbi, Publishing House "Prospect," 2006 - 368s.
- Vinokurov A.A., Glushkova V.G., Makar S.V. Introduction to economic geography and regional economy of Russia. At 2 a.m.: VLADOS-PRESS Publishing House, 2003
- Zheltikov V.P. Economic geography. - Rostov n/A: Phoenix, 2003. -288s. 4. Morozova T.G., Pobedina M.P., Shishov S.S. Economic geography of Russia: Textbook. Manual for universities. - M.: UNITY, 2000. -527s.