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Hydrocarbons – Gift or Curse: Future Perspectives on their Use

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THEORETICAL AND METHODOLOGICAL PART: DEFINITION OF BASIC CONCEPTS. PUBLISHED RESEARCH

In numerous scientific publications, it is asserted that excessive revenues derived from natural resources are not always a blessing and often harm developing countries.

The characteristic symptoms of the "resource curse" manifest as a decline in democratic accountability, decreased effectiveness of the administrative apparatus, increased economic instability, heightened corruption, and a greater risk of civil conflict.

A reasonable question arises: is possessing valuable minerals really that dangerous? Which specific resources are significant in this context and why? Are the arguments of those who speak of the "resource curse" convincing? The "resource curse" can be defined as a set of negative effects arising from a country's possession of natural resources, which impact its economic, social, or political development.

Although the most well-known works on this topic acknowledge the existence of the "resource curse", their authors hold different views regarding the mechanisms that generate these problems and the conditions that favor their occurrence.

Interestingly, there is very little discussion on political measures that could halt the effects of the "resource curse". The term "resource curse" first appeared in the scientific literature in Richard Auty's 1993 book[1]. However, the idea that an abundance of natural resources can threaten a state's well-being originated much earlier and occupied the minds of many researchers. Niccolò Machiavelli, Jean Bodin, and Charles-Louis de Montesquieu wrote that citizens of states richly endowed with natural resources tend to become lazy and short-sighted. Adam Smith also pointed out the dangers of the pursuit of wealth through natural resources in his work "An Inquiry into the Nature and Causes of the Wealth of Nations":

> *"…Meanwhile, of all the costly and unreliable projects that lead to bankruptcy for most people who pursue them, there is perhaps no more ruinous and disastrous endeavor than the search for new silver and gold mines"[2].*

[1] Auty R. Sustaining Development in the Mineral Economies: The Resource Curse Thesis. London: Routledge, 1993.

[2] Smith A. The Wealth of Nations. London, 1776 [1991]. Vol. 4. Ch. 7. P. 18

Even David Ricardo, who made significant contributions to the development of the modern concept of economic rent, saw little benefit in the exploitation of silver or gold mines. In his work "Principles of Political Economy and Taxation", he references the economic situation in Spain and Portugal:

> *"…the increase in the amount of precious metals has not, it seems, increased the annual product of the country, improved its manufacturing or agriculture, or bettered the condition of its inhabitants. Spain and Portugal—countries with mines—are, after Poland, perhaps the poorest countries in Europe."*[3]

Contemporary political scientists studying the "resource curse" often refer to the works of their Middle Eastern colleagues, who in the 1970s revived the concept of the "rentier state", using it to explain certain features of the governance systems in oil-producing countries.[4]

The modern interpretation of the term was developed by political scientist Hossein Mahdavi: according to him, a rentier state is a state that receives significant rent from "foreign individuals and commercial companies or governments of other states".[5]

New approaches to the issue were proposed through research on the subnational level of government under democratic regimes, particularly in the United States, Brazil, and Argentina[6] - countries where experience has shown that funding budgets with oil revenues (or federal subsidies backed by oil revenues) extends the tenure of elected officials at the local level.

This is explained by the so-called "rentier effect": an abundance of oil revenues allows elected officials to simultaneously lower taxes and strengthen the system of state patronage, thereby buying off potential competitors and reducing public discontent.[7]

The rentier model suggests that resource wealth affects not the preferences of rulers per se, but rather the fiscal capacity to implement those preferences. Additionally, having resources increases the value for leaders of remaining in power but has little impact on their ability to act. According to this model, the availability of resource rent makes the leadership position even more desirable, which motivates leaders to make efforts to maintain the existing regime.

Thus, most contemporary authors agree that oil wealth strengthens the positions of authoritarian rulers and hinders the transition to democracy.

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[3] Ricardo D. On the Principles of Political Economy and Taxation. London, 1817 [1911].
Ch. 28. Par. 10 (см.: Beblawi H. The Rentier State in the Arab World // Beblawi H., Lucciani G. (Eds.). The Rentier State. New York: Croom Helm, 1987. P. 50).

[4] Lenin V. Marxism and Insurrection // Tucker R. (Ed.). The Lenin Anthology. New York:
W.W. Norton, 1975. P. 407–412.

[5] Mahdavy H. The Patterns and Problems of the Economic Development in Rentier States: The Case of Iran // Cook M. (Ed.). Studies in Economic History of the Middle East. London: Oxford University Press, 1970. P. 428.

[6] Gervasoni C. A Rentier Theory of Subnational Regimes // World Politics. 2010. Vol. 62. №2. P. 302–340.

[7] Mahdavy H. Op. cit.; Crystal J. Op. cit.; Ross M. Does Oil Hinder Democracy?

In some studies, however, such as those by Krista Brunschweiler and Eric Bulte, both the overall impact of natural resources on a society's conflict potential and the specific influence of oil are questioned. Empirically, they refer to measuring resource dependence using the World Bank's Index of Natural Capital Stock, concluding that the available data do not allow for a definitive assertion of a relationship between resource dependence and civil wars.[8]

The accuracy of researchers studying the "oil curse" is still limited by several factors, including:

1. The lack of reliable data, which is either protected by commercial confidentiality or concealed by national governments;
2. Incomplete understanding of how and why the political consequences of resource ownership manifest differently in various countries;
3. The unresolved question of why different mineral resources produce such varied effects - in other words, why oil affects societies differently than, for example, bauxite, copper, or gold. It is possible that these differences may turn out to be illusory. It is also possible that these differences are merely a matter of scale: hydrocarbons and their by-products account for over 90% of the international mineral trade, and therefore there are far more oil-dependent countries than those dependent on other mineral resources. Alternatively, it could be due to the specific nature of oil itself: oil extraction remains the most capital-intensive type of mineral extraction, with higher resource rent and government revenues. Accounting for all these factors will help identify the characteristics of oil wealth or the oil industry that turn them into a source of danger.
4. Is there a formula for the effective use of extracted hydrocarbons? Researchers point to the need for political actions, including ensuring greater transparency in the oil sector, establishing stabilization and savings funds, involving the public in regulating the industry, distributing a portion of oil revenues directly to the population, developing alternative taxation systems, and fees for resource extraction.[9]

Thus, to date, there has not been a systematic and structured program of political and economic measures that can be considered effective. Meanwhile, with the growth of the hydrocarbon extraction industry in developing countries, there is an increasing need for an empirically validated political and economic program for managing extracted natural resources.

ANALYSIS OF THE STATE: STATISTICAL AND METHODOLOGICAL

In the second part of our study, the characteristics of the development of countries with significant hydrocarbon reserves will be examined through practical examples.

Saudi Arabia

- World ranking by GDP volume – #19.
- GDP – 1,8 trillion USD.

[8] Brunnschweiler C., Bulte E. Op. cit.

[9] Humphreys M., Sachs J., Stiglitz J. Escaping the Resource Curse. New York: Columbia University Press, 2007; Collier P. The Plundered Planet. New York: Oxford University Press, 2010; Moss T. (Ed.). The Governor's Solution: How Alaska's Oil Dividend Could Work in Iraq and Other Oil-Rich Countries. Washington, DC: Center for Global Development, 2012; Barma N., Kaiser K., Le T., Viñuela L. Rents to Riches? Washington, DC: The World Bank, 2011; Ross M. The Oil Curse.

- Share of hydrocarbons in GDP – 40%.
- World ranking by oil reserves – #2.
- GDP per capita – 30 436 USD, #45 in world.
- **Main economic sectors:** extraction of natural resources – 44%, manufacturing – 14%, trade and tourism – 11%, transport and communications – 7%, real estate – 6%.
- **Low level of diversification –** dependence on the oil and gas sector.
- **High Gini coefficient** – 0,45 (2019).

Income is distributed as follows:

- to the government reserve fund
- defense capabilities
- economic reforms, creation of new jobs, reduction of unemployment from 12% to 9%
- investments in technology and innovation
- social support - maternal capital (70 000 USD), pensions at least 50% of salary, business start-up grants up to 50 000 USD, healthcare, education, utilities, gasoline, and loans - free or subsidized

United Arab Emirates

- World ranking by GDP volume – #30.
- GDP – billion USD.
- Share of hydrocarbons in GDP – 26%.
- World ranking by oil reserves – #7.
- GDP per capita – 53 708 USD, #19 in world.
- **Main economic sectors:** extraction of natural resources – 24%, trade – 13%, industry – 10%, construction – 8%, finance and insurance– 7%.
- **Low level of diversification** – a quarter of the economy depends on the oil extraction sector.
- **Low Gini coefficient** – 0,26 (2018).

Income in distributed as follows:

- to citizens until they reach adulthood, up to $30,000 per year.
- to sovereign stabilization funds, which in turn are invested in stocks, bonds, insurance funds, construction, and manufacturing companies on a global scale.

Republic of Kazakhstan

- World ranking by GDP volume – #49.
- GDP – 261 billion USD.
- Share of hydrocarbons in GDP – 20%.
- World ranking by oil reserves – #11.
- GDP per capita – 11 625 USD, #87 in world.
- **Main economic sectors:** extraction and processing - 28%, trade – 17%, real estate – 6%, transport – 6%, agriculture – 5%.
- **Low level of diversification** – 28% of the economy's dependence on the oil and gas sector.

- **Low Gini coefficient** – 0,29 (2021).

Income in distributed as follows:
To the National Fund – for children. 50% of the National Fund's investment income will be distributed among children of all ages up to 18 years old. The funds accumulated in the account can only be accessed after reaching adulthood.

Funding for social and economic programs is provided through taxes on the activities of oil companies.

Malaysia
- World ranking by GDP volume – #37.
- GDP – 445 billion USD.
- Share of hydrocarbons in GDP – 20%.
- World ranking by oil reserves – #27.
- GDP per capita – 11 972 USD, #84 in world.
- **Main economic sectors:** trade and services – 58%, construction – 15%, manufacturing –13%, natural resources extraction – 9%, agriculture – 1%.
- **High level of diversification** – more than half of the economy is concentrated in manufacturing and service sectors.
- **High Gini coefficient** – 0,40 (2021).

The Malaysian government has established “Khazanah Nasional Berhad” – a sovereign wealth fund tasked with enhancing the country's long-term wealth. The commercial goal of Khazanah is to increase financial assets and diversify income sources, while the strategic goal is to hold strategic assets that provide long-term economic benefits.

Venezuela
- World ranking by GDP volume – #72.
- GDP – 97 billion USD.
- Share of hydrocarbons in GDP – 25%.
- World ranking by oil reserves – #1.
- GDP per capita – 4 569 USD, #130 in world.
- **Main economic sectors:** trade and services – 51%, natural resources extraction and related industries – 37%, production – 12%, agriculture – 5%.
- **Low level of diversification** – High dependence on the oil and gas sector amid an economically distressed situation.
- **High Gini coefficient** – 0,60 (2022).

Previously, revenues were allocated to the Macroeconomic Stabilization Fund. The fund's resources were used with the approval of Congress in the following cases:
- when oil export revenues fell below a baseline level;
- when the fund's balance exceeded 80% of the average annual oil export revenues over the past 5 years.

The rules for allocating money to the fund were frequently changed, and the government budget was regularly in deficit. Under President Hugo Chávez, the fund's reserves were depleted, and it is now virtually inactive.

Nigeria

- World ranking by GDP volume – #25.
- GDP – 475 USD.
- Share of hydrocarbons in GDP – 6%.
- World ranking by oil reserves – #10.
- GDP per capita – 2 174 USD, #164 in world.
- **Main economic sectors:** trade and services– 54%, agriculture– 27%, industrial production including natural resource extraction– 19%.
- **Low level of diversification** – despite the fact that the oil and gas sector accounts for no more than 10% of the country's GDP, oil revenues contribute up to 80% of the government's revenue.
- **Average Gini coefficient** – 0,35.

Less than 10% of revenues from natural resource rents are allocated to improving the quality of life for the population and implementing social projects, with the majority going towards current government expenses, staff salaries, and overhead costs. According to the Extractive Industries Transparency Initiative (EITI), Nigeria's Natural Resource Development Fund has fallen short of its original objectives and has an unpaid debt of 1.9 billion USD, resulting from the diversion of funds for purposes unrelated to its primary goals.

Norway

- World ranking by GDP volume – #31.
- GDP – 428 billion USD.
- Share of hydrocarbons in GDP – 24%.
- World ranking by oil reserves – #17.
- GDP per capita – 106 623 USD, #5 in world.
- **Main economic sectors:** industrial production including natural resource extraction – 49%, trade and services– 42%, agriculture – 1,5%.
- **Good level of diversification** – Norway has a developed mixed economy with a significant share of the public sector in strategic industries.
- **Low Gini coefficient** – 0,27.

Revenues are allocated to the Government Pension Fund of Norway. Contributions to the fund are linked to achieving a budget surplus through oil sales. The Norwegian government, with parliamentary approval, is permitted to use the fund’s resources to compensate for declines in budget revenues and for long-term balancing between generations of budget income as oil production decreases and social spending increases. The fund’s usage experience shows that it has helped smooth fluctuations in domestic demand, reduce inflationary pressures, and mitigate the appreciation of the national currency. The substantial size of Norway's oil fund has allowed investments in highly liquid and high-yield bonds of foreign governments and

profitable stocks of foreign companies. The fund has essentially become an effective tool for conservative fiscal policy and for supporting the Norwegian economy.

Russian Federation

- World ranking by GDP volume – #8.
- GDP – 2 240 billion USD.
- Share of hydrocarbons in GDP – 16,5%.
- World ranking by oil reserves – #8.
- GDP per capita – 15 482 USD, #74 in world.
- **Main economic sectors:** services – 35%, industrial production – 28%, trade – 16%, construction and agriculture – 12%.
- **High level of diversification** – the country has a developed mixed economy, with the share of the oil and gas sector in GDP decreasing from 18% in 2022 to 16.5% in 2023.
- **Average Gini coefficient** – 0,36.

Revenues are allocated to the Russian National Wealth Fund (NWF), which was established in February 2008 as a result of the division of the then-existing Stabilization Fund into the Reserve Fund (created to finance the oil and gas transfer) and the National Wealth Fund (created to co-finance voluntary pension savings of citizens and balance the budget of the Russian Pension Fund).

The NWF acts as a "safety cushion" that allows the government to compensate for the loss of oil and gas revenues in the event of a sharp drop in oil prices and to fulfill all its social obligations. Since January 1, 2018, the NWF and the Reserve Fund were combined into a single fund based on the NWF. As a result of this merger, the NWF's objectives remain the same: co-financing voluntary pension savings of Russian citizens and ensuring the balance of the Pension Fund budget. Additionally, a new objective was added to ensure the balance (covering the deficit) of the federal budget.

Japan

- World ranking by GDP volume – #4.
- GDP – 4,2 trillion USD.
- World ranking by oil reserves – #77.
- GDP per capita – 34 144 USD, #38 in world.
- **Main economic sectors:** agriculture – 1%, industrial production – 29%, trade and services – 70%.
- **High level of diversification** – the share of manufacturing and high-tech industries predominates.
- **Average Gini coefficient** – 0,32.

South Korea

- World ranking by GDP volume – #14.
- GDP – 1,7 trillion USD.
- Estimated global ranking by oil reserves (according to the discovered reserves as of June 2024) – #18.

- GDP per capita – 32 305 USD, #43 in world.
- **Main economic sectors:** industrial production – 31%, trade and services – 11%, real estate – 8%, finance and insurance – 7%, government regulation, defense, social protection – 7%.
- **High level of diversification** – industrial production constitutes the predominant share of the economy.
- **Average Gini coefficient** – 0,31.

In Korea, the role of the national sovereign fund is performed by the Korea Investment Corporation (KIC), established in 2005 to preserve and enhance the long-term purchasing power of the Republic of Korea's national wealth through effective management of state assets in international financial markets. KIC manages assets entrusted to it by the Government, the Bank of Korea, and other government funds.

Prospects for the Further Use of Hydrocarbons

Currently, our planet is undergoing the fourth energy transition in history: from fossil fuels to "green" energy. But will new energy sources completely replace traditional ones, and is this necessary? Or will the familiar oil and gas find their place in the environmentally friendly world of the future?

In 2019, the European Union adopted the priority of developing "green" energy through the European Green Deal, which aims to achieve carbon neutrality by 2050, with up to 0.6 billion euros allocated for this purpose by 2030. In 2021, the U.S. President also signed an executive order for the development of "green" energy (Green New Deal), which provides for 2 trillion USD in investments in this area, and aims to achieve 100% clean electricity by 2035. Thus, the energy transition in developed countries is progressing at a rapid pace.

However, in developing countries, especially in Africa, Central Asia, and some Southeast Asian countries, access to even traditional sources of electricity and fuel is quite limited. It is likely that the energy transition in such countries will stretch over several decades, as the necessary investment volumes are lacking.

One of the world's largest oil and gas companies, BP, has set its course for development by 2030: reducing oil and gas production, advancing bioenergy, reducing emissions, accelerating the expansion of solar energy and offshore wind, developing new technologies in carbon capture, hydrogen technologies, and installing 100,000 electric vehicle charging points. To achieve this, the company plans to allocate more than 40% of its capital to the aforementioned "green" business areas.

Similar goals are shared by most of the major companies, such as Shell, ExxonMobil, Chevron, Total, and Equinor. Many of them have large projects in wind, offshore hydrothermal, and solar power plants. Middle Eastern (Saudi Aramco, Kuwait Petroleum Corporation), Far Eastern (PetroChina, Petronas), and Russian (Rosneft, Gazprom) oil and gas companies have also embarked on diversifying their businesses into the 'green' direction. Therefore, the symbiosis

between oil and gas engineering and 'green' energy is expected to continue to grow, as illustrated in Figure 1.

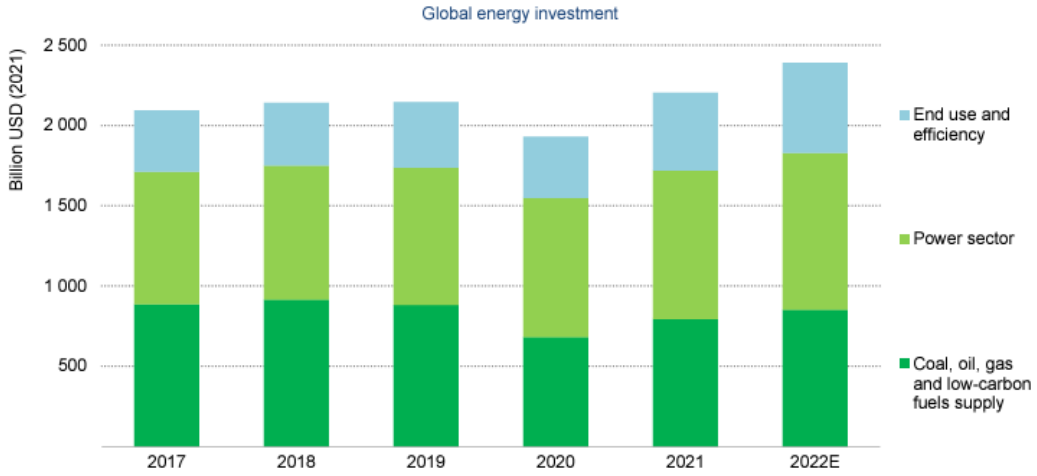

Figure 1.

The International Energy Agency (IEA) expects that by 2030, global consumption of the three main types of fossil fuels—oil, gas, and coal—will peak. This is stated in the organization's annual report, World Energy Outlook 2023 (WEO-2023).

Achieving maximum consumption volumes within these deadlines is anticipated in all three scenarios considered by the agency, including the so-called Stated Policies Scenario, which takes into account only the measures that have already been implemented in energy, industry, and climate policy. The other two scenarios—the Announced Pledges Scenario and the Net Zero Emissions by 2050 Scenario—assume a more proactive implementation of the green agenda worldwide.

However, reaching peak demand for fossil fuels will not mean the end of investments in projects related to their use, experts point out. According to the IEA, investments in oil and gas projects are currently twice as high as projected in the Net Zero Emissions by 2050 Scenario for 2030. This indicates that demand for fossil fuels will remain at a high level, which, at the same time, will not allow achieving the goal of limiting global warming to 1.5°C by 2050 (see Figure 1.1).

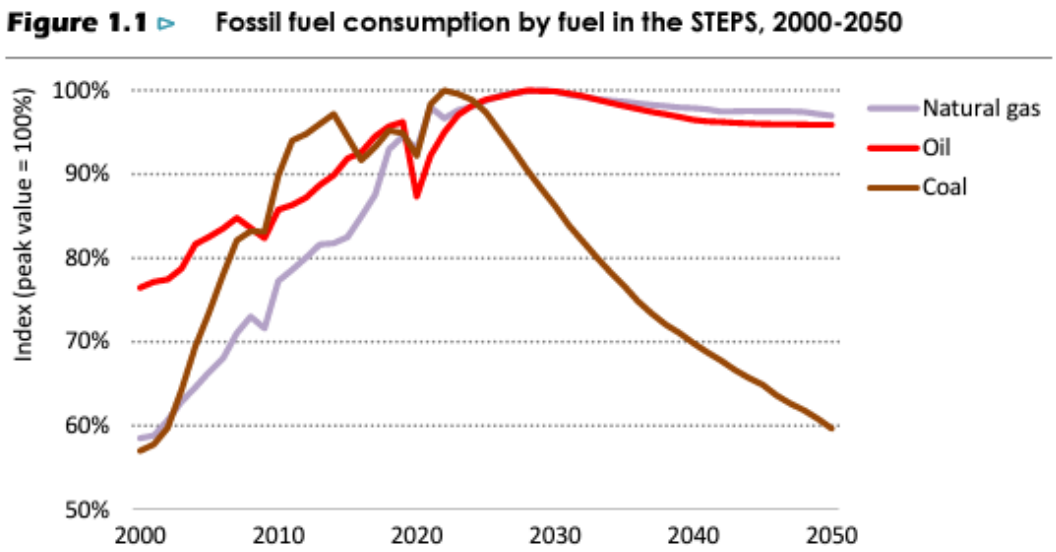

Figure 1.1

It is necessary to highlight the 5 main types of renewable energy sources in Table 1.[i]

Table 1.

Name	Method of Production	Negative Effects
Hydropower	Energy Source – Water. The most common method involves generating energy using a dam and turbines that spin the water inside. The potential capacity of hydropower plants is 30-40 terawatt-hours per year.	Changes in water levels in reservoirs, reduction of oxygen in the water, disruption of fish spawning cycles, and other negative effects on flora and fauna.
Wind power	Energy Source – Wind. Energy is also generated using turbines that are driven by the wind. They are much cheaper than water turbines and are installed at heights of around 100 meters, meaning the land beneath them can be used for agricultural purposes.	The main drawback of this source is its instability: it requires waiting for wind of a certain strength. This is possible only away from populated areas, which means that delivering the energy can be costly.
Solar power	Energy Source – Sun. Such stations can collect sunlight using panels that convert it into energy.	Even in very sunny locations, there are changes in day and night and seasonal variations, so energy production will be uneven.
Wave energy	Energy Source – Ocean waves. Special modules float on the waves and generate energy from their movement.	Their potential is only 2 terawatt-hours per year; they can be hazardous to marine transport and create noise that disturbs aquatic wildlife.
Geothermal energy	Source - heat + water. At depth, two wells are drilled: one where water is injected. It evaporates, heating up from the earth, and the steam passes through the second well, then travels through pipes to	This is a fairly stable energy source with a potential of 47 terawatt-hours per year. However, it has a negative impact on the environment, and hazardous gases and minerals can be released from

	turbines, while being purified of impurities.	the well, which may be difficult to dispose of.

After considering alternative energy options, it should be concluded that today hydrocarbons, particularly oil, remain the number one fuel in the world: its global consumption share is over 30%.

Considering natural gas production, it can also be said that there are no objective reasons for its drastic reduction. Global gas production is expected to increase by 3% in the current year compared to 2023, reaching 4.16 trillion cubic meters, driven by rising demand and decreasing fuel prices. This is stated in the monthly report of the Gas Exporting Countries Forum (GECF)[ii]. Moreover, according to a report prepared by the United Nations Environment Programme (UNEP), an increase in global fossil fuel production is also forecasted.

In addition to the materials presented, it should be noted that, for example, the chemical industry is impossible without oil: all oils, solvents, varnishes, paints, and even electrical insulating compounds are made from its products. Solar panels, which house photovoltaic cells, are made from petroleum products. Asphalt is partially made from oil, with bitumen used as a binder for stones and gravel. Even synthetic protein, used to produce cheaper food, is made with the help of petroleum products.

Thus, it is evident that today society cannot do without oil and gas. Even if there is a complete transition of automotive transport, heating, and supporting systems to alternative fuels, there are numerous industries where hydrocarbons are used. Their extraction and processing may decrease over time, but they will not disappear entirely.

RESEARCH CONCLUSIONS

1. The first and main conclusion of the study is that, in our view, there is no such thing as a "resource curse" or "oil curse"; rather, there is a curse of "ineffective management" meaning a lack of political will to develop and implement a well-thought-out, comprehensive economic development program based on large hydrocarbon reserves. This conclusion is supported by the successful and efficiently functioning economic systems of Norway (17th in the world for oil reserves) and Malaysia (27th).

Considering Norway's experience in this area, it is worth noting the creation of the Government Pension Fund of Norway. The government is authorized to use the Fund's resources with parliamentary approval, meaning that Norway has effectively implemented a system of involving the public in the management and allocation of its funds. This fund has become an effective tool for fiscal policy and for supporting the growth of the Norwegian economy.

It should be concluded that where there is public oversight and a mechanism for civil society to influence state decisions on the use of natural resource revenues, expenditures are managed more rationally and transparently, ensuring long-term integration of state and societal interests and forming a consensus. Unfortunately, such a mechanism is actively observed only in Norway.

In those states where society is excluded from the decision-making process on this crucial issue, natural resource revenues often lead to irrational and inefficient use of these substantial funds, resulting in rapid social stratification and, consequently, increased tension within society.

In the case of the United Arab Emirates, a more equitable distribution of natural wealth is observed, which on the one hand should benefit all people, and on the other hand, serve as a foundation for the stability and prosperity of future generations.

The regulatory role of the state, a well-thought-out long-term diversified financial policy, along with the active implementation of advanced technologies and renewable energy sources, have enabled Norway to achieve leading positions in the global quality of life rankings. This once again confirms the previously stated view that the concept of the "resource curse" is ephemeral, while the concept of "effective management" is fundamental when considering the development of countries.

Based on the first conclusion, a crucial initial element of "effective management" is the ambition of those making strategic decisions, as vividly demonstrated by the example of Dubai's diversified economy—a metropolis in the desert. In the early 20th century, Dubai's economy depended 90% on oil, but by the end of 2022, this dependence had dropped to just 1%, compared to 45% in the Emirate of Abu Dhabi. The authorities of Dubai placed a strong emphasis on business development, trade, construction, and tourism, transforming Dubai into a global business hub that attracts investments as well as an increasing number of dollar millionaires and billionaires relocating permanently.

The example of Japan, which is ranked 77th globally in terms of oil reserves, is also illustrative. Japan has built a strong economy based on science-intensive and high-tech industries. If Japan had large volumes of hydrocarbons, with its world-leading technological potential, the country could have further strengthened its economic development. In this case, the presence of oil would have been not a resource curse but a natural gift that the industrious Japanese people would have utilized very effectively.

In our view, given the anticipated reduction in the share of hydrocarbons in the global energy balance by 2050, countries rich in these resources should develop much more ambitious economic diversification programs. In the near future, a sharp decline in revenues and natural rents from hydrocarbons could lead to severe, and sometimes catastrophic, consequences due to the underdevelopment of alternative economic sectors and the population's unpreparedness for significant losses in income.

Simultaneously, as evidenced by international practice, it is essential to avoid an excessive focus on mega-projects with questionable economic viability. Instead, investments, technologies, and labor resources should be directed towards projects and industries that facilitate the structural transformation of the economy in line with the priority trends of global economic development. In other words, economic diversification needs to begin now to ensure readiness for the energy transition by 2040-2050.

In addition, it is important to note the risks of political dependence on the influence of international relations with the oil-exporting country, both with hydrocarbon-consuming nations and with global powers. The example of Venezuela's economy is illustrative, as it faces sanctions from the United States, which include restrictions on the oil extraction sector.

2. In our opinion, the wealth derived from natural resources should belong not only to the current generation but also to future generations. Therefore, a portion of the natural rent should be preserved and augmented to support and develop the economy and social sector for future generations once oil extraction ceases.

We classified countries according to various factors discussed above, based on three main criteria:

1. Ensuring the current well-being of the population;
2. Development and modernization of existing industries to ensure competitiveness;
3. Investment in future generation funds.

We have categorized these countries into three groups, as illustrated in Table 2.

Table 2.

Country	**GDP per capita**	**Gini coefficient**	**Economic diversification**	**Investment in future generation funds**
Norway	106 62 USD #5 in world	0,27	The main sector of the economy - industrial production and natural resource extraction - accounts for 49%	At a very high level
South Korea	32 305 USD #43 in world	0,31	The main sector of the economy -industrial production - accounts for 31%	At high level
United Arab Emirates	53 708 USD #19 in world	0,26	The main sector of the economy - natural resource extraction - accounts for 24%	At high level
Malaysia	11 972 USD #84 in world	0,40	The main sector of the economy - trade and services - accounts for 58%	At high level
Saudi Arabia	30 436 USD #45 in world	0,45	The main sector of the economy - natural resource extraction - accounts for 44%	At high level
Russian Federation	15 482 USD #74 in world	0,36	The main sector of the economy - services - accounts for 35%	At average level

Republic of Kazakhstan	11 625 USD #87 in world	0,29	The main sector of the economy - natural resource extraction - accounts for 28%	At average level

Nigeria	2 174 USD №164 in world	0,35	The main sector of the economy - trade and services - accounts for 54%	At low level
Venezuela	4 569 USD #130 in world	0,60	The main sector of the economy - trade and services - accounts for 51%.	At a very low level (the fund is virtually inactive)

First Group of Countries

Considering one of the lowest Gini coefficients globally - 0.27, and consequently one of the highest standards of living, along with a highly developed economy and the presence of the largest wealth fund in the world, we assign Norway the highest rating among the countries examined.

The second place in our ranking, considering the low Gini coefficient (0.31) and the high level of economic diversification, is assigned to **South Korea.**

The UAE has one of the lowest Gini coefficients in the world - 0.26. Noting the high standard of living of the UAE population and the presence and implementation of comprehensive innovative development plans, we have ranked the UAE in third place. In most of the cases examined, a Gini coefficient ranging from 0.26 to 0.31 indicates a rational redistribution of natural resource rents and the formation of reserves for future generations.

Second Group of Countries

Despite having a highly diversified economy, **Malaysia** has a relatively low GDP per capita and a Gini coefficient of 0.40, which prevented us from placing it among the leading countries.

Japan has a highly diversified economy based on high-tech and science-intensive industries, and a relatively high GDP per capita. However, it also faces a significant national debt relative to GDP, at 261%. Additionally, the country has a demographic issue related to a low birth rate, which in the medium to long term could lead to a substantial labor shortage and slower economic growth.

Saudi Arabia has a clear and multifaceted strategy for diversifying its economy and reducing dependence on oil extraction. However, the kingdom's economy still shows significant reliance on hydrocarbons today.

The economy of **the Russian Federation** is relatively less dependent on hydrocarbon extraction—16.5%, which highlights a fairly good level of economic diversification, potential for further development, and resilience to imposed sanctions.

Kazakhstan's economy is relatively young and, with the right development strategy, has good prospects for attracting investments, reducing dependence on hydrocarbon exports, developing the domestic consumer market, and advancing infrastructure and agriculture.

Third Group of Countries

As the largest economy in Africa, **Nigeria** has a strong dependence on the oil and gas sector. Currently, there is no observed leading development in the industrial sector within the country. There are also concerns about the transparency of the Natural Resource Development Fund's activities, making it difficult to discern the role of the public in the distribution and receipt of natural resource revenues.

With the largest hydrocarbon reserves in the world, Venezuela has a GDP per capita of 4 569 USD, ranking 130th globally. The country also has one of the highest Gini coefficients, at 0.60 (2022). The sanctions imposed on the government and the oil extraction sector, along with the decline in oil prices in the late 1980s, have led to a continuing economic crisis.

In 1989, a program for economic stabilization and structural adjustment, developed at the initiative of the IMF, was launched. However, its implementation led to widespread discontent and public unrest. The country needs to develop a new, comprehensive stabilization and economic development program, taking into account international political and economic factors.

3. Considering the forecasts of both specialized and non-specialized international organizations, as well as the high energy efficiency, availability, widespread use, and relatively low-cost extraction of hydrocarbons, they are expected to remain the primary energy sources in most countries over the next two to three decades. Furthermore, with the development of renewable energy sources, their share will gradually and steadily decline due to several reasons, including the financial costs of extracting from hard-to-reach reservoirs. In a historical perspective, hydrocarbons have been the foundation for the dynamic development of both individual countries and peoples, as well as global industry as a whole. Without these natural resources, world civilization would not have achieved its current level of development in such a relatively short period.

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