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Institute of Economics and Management

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GRADUATE QUALIFICATION WORK OF MASTER'S DEGREE STUDENT

(MASTER'S THESIS)

Impact investing in oil & gas industry: towards sustainability

on the basis of the educational program for preparing master's degree students

38.04.02 – Management

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« 15 » June 2023

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« 15 » June 2023

Tomsk-2023

Ministry of Science and Higher Education of the Russian Federation
NATIONAL RESEARCH
TOMSK STATE UNIVERSITY (NR TSU)
Name of the educational structural unit

APPROVE
Head of the main educational program
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THE TASK

of completing the final qualification work of a bachelor / specialist / master to a student
Mitupova Nadezhda Tsyrensodnomovna
Last name First Name Patronymic of the student
in the direction of training38.04.02, main educational program (profile) "International Management"

1 Topic of the thesis
Impact investing in oil & gas industry: towards sustainability

2 The deadline for student to complete the thesis:
a) to the academic office / dean's office – 20.06.2023
б) to State Examination Commission – 26.06.23

3 Initial data for work:
The object of the study – impact investment mechanisms in the sustainable strategy of the organization
The subject of the study – the influence of environmental, social and management criteria on Saudi ARAMCO's impact investment
The aim of the study – to analyze the peculiarities of impact investing activities in the oil & gas sector.

Tasks:
1.To consider the theoretical foundations of impact investing in organizations;
2.To consider the specifics of financing sustainable projects and identify the role of various factors on the sustainable investment activities of companies of oil & gas industry;
3.To compare ESG frameworks in oil & gas industry as a benchmark for impact investors and companies;
4. To determine the role of non-financial reporting of oil and gas companies on impact investing decisions.

Research methods:
analysis (system, comparative, PESTLE, SWOT), synthesis, concretization.

The organization or industry on which the work is being carried out –
Saudi ARAMCO (oil and gas industry)

4 Summary of the work:

The term "impact investing" is clarified as a broader concept combining both internal and external investments of the company, identifying and clarifying trends in sustainable development in the oil and gas industry and identifying ways to improve the preparation of Saudi ARAMCO non-financial reporting based on the ESG guidelines of the GCC Exchange Committee.

Supervisor of the final qualification work
Associate Professor, PhD in Economics
rank, place of employment

signature / *Full name*

The task was accepted by
Student of the 272111 Group
rank, place of employment

signature / Nadezhda Mitupova
Full name

АННОТАЦИЯ

Тема работы: Impact investing in oil & gas industry: towards sustainability (Импакт-инвестирование в нефтегазовой отрасли: на пути к устойчивости).

Магистерская диссертация содержит 65 страниц печатного текста, 27 рисунков, 4 таблицы, 1 формулу, 129 источников литературы.

Ключевые слова: импакт-инвестирование, ESG, SRI, нефинансовая отчетность, нефтегазовая отрасль, Ближний Восток.

Актуальность: во всем мире растет интерес к преобразованию экономики в устойчивую, прозрачную и "зеленую". В результате, чтобы обеспечить высокие темпы развития и непрерывный рост рыночной стоимости компании, предприятия должны учитывать влияние инвестиционных проектов на общество и окружающую среду.

Цель исследования: проанализировать особенности импакт-инвестиционной деятельности в нефтегазовом секторе.

Для достижения поставленной цели были решены следующие задачи:

1. рассмотрены теоретические основы импакт-инвестирования в организации;
2. рассмотрена специфика финансирования устойчивых проектов и определена роль различных факторов в устойчивой инвестиционной деятельности компаний нефтегазовой отрасли;
3. проведен сравнительный анализ ESG-фреймворков в нефтегазовой отрасли в качестве ориентира для импакт-инвесторов и компаний;
4. определена роль нефинансовой отчетности нефтегазовых компаний в принятии решений об импакт-инвестировании.

Объект исследования: механизмы импакт-инвестирования в устойчивой стратегии организации.

Предмет исследования: влияние экологических, социальных и критериев управления на импакт-инвестирование Saudi ARAMCO.

Методы исследования: анализ (системный, сравнительный, PESTLE, SWOT), синтез, конкретизация.

Практическая значимость работы заключается в применении результатов анализа при определении путей улучшения подготовки нефинансовой отчетности Saudi ARAMCO на основе ESG-руководства Комитета GCC биржи.

Научная новизна работы заключается в уточнении термина «импакт-инвестирование» как более широкого понятия, объединяющего как внутренние, так и внешние инвестиции компании.

ABSTRACT

Topic of the master’s thesis: Impact investing in oil & gas industry: towards sustainability).

The master's thesis contains 65 pages of printed text, 27 figures, 4 tables, 1 formula, 129 sources.

Keywords: impact investing, ESG, SRI, non-financial reporting, oil and gas industry, Middle East.

Relevance: There is a growing interest worldwide in transforming the economy into a sustainable, transparent and "green" one. As a result, in order to ensure high rates of development and continuous growth of the company's market value, enterprises must take into account the impact of investment projects on society and the environment.

The purpose of the thesis: is to analyze the peculiarities of impact investing activities in the oil & gas sector.

To achieve this goal, the following tasks were solved:

1. the theoretical foundations of impact investment in organizations were considered;
2. the specifics of financing sustainable projects were considered and the role of various factors in the sustainable investment activity of oil and gas companies was determined;
3. a comparative analysis of ESG frameworks in the oil and gas industry was conducted as a guideline for impact investors and companies;
4. the role of non-financial reporting of oil and gas companies was determined. companies in making decisions about impact investing.

Object of research: impact investment mechanisms in the sustainable strategy of the organization.

Subject of research: the influence of environmental, social and management criteria on Saudi ARAMCO's impact investment.

Research methods: analysis (system, comparative, PESTLE, SWOT), synthesis, concretization.

The practical significance of the work lies in the application of the results of the analysis into identifying ways to improve the preparation of Saudi ARAMCO non-financial reporting based on the ESG guidelines of the GCC Exchange Committee.

The scientific novelty of the work consists in clarifying the term "impact investing" as a broader concept combining both internal and external investments of the company.

ABBREVIATIONS

CCUS – Carbon capture, utilization and storage

CDP – The Carbon Disclosure Project

ESG – Environmental, Social, Governmental

GRI – The Global Reporting Initiative

IIRC – The International Integrated Reporting Council

IPIECA – The International Petroleum Industry Environmental Conservation Association

OSHA – The Occupational Safety and Health Administration Standards and the American Petroleum Institute Recommended Practices

SASB – The Sustainability Accounting Standards Board

SDGs – The Sustainable Development Goals

TCFD – The Task Force on Climate-related Financial Disclosures

UNGC – The United Nations Global Contact

WEF – World Economic Forum

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INTRODUCTION

More than half of the world's energy-related greenhouse gas emissions is attributed to the production and consumption of oil and gas. Companies, especially huge firms, have a negative impact on society and the environment. Investors, governmental entities, and the community are exerting tremendous pressure on the company.

Ignoring elements that have a negative impact on the company's and society's ability to develop sustainably can have an immediate financial impact in the form of expenses for adjusting a business model to evolving environmental conditions and expenses for mitigating the effects of accidents. Companies are changing their financial strategies, considering environmental factors when planning and implementing investment projects, and making sure they comply with decarbonization requirements in order to increase flexibility to change the business environment as a result of shifting global market conditions and growing operational scale.

Increasingly, financial institutions are paying more attention to the environmental performance of companies as well as the corporate culture and the transparency of company management.

Financial institutions are increasingly focusing on a company's environmental performance in addition to its corporate culture and managerial transparency. The current commitments made by oil and gas businesses go beyond their philanthropic efforts and social investments.

The majority of businesses are aware that their duties extend beyond spill reconstruction, soil remediation, and rebranding. A company's investment appeal increases when it engages in sustainable development practices, which also help it boost its reputation in the international market. Oil and gas firms have a special chance to support social and economic growth for a resilient and prosperous future.

The economic paradigm is changing around the world, moving away from the short-term shareholder value that predominated prior to the crisis, which was mostly brought on by the coronavirus outbreak, to long-term value. Businesses have widened their planning horizons and are taking environmental technology evolution scenarios more seriously.

The relevance of the research topic lies in the fact that there is a growing global interest in transforming the economy into a sustainable, transparent and green economy. As a result, in order to ensure high rates of development and a continuous increase in the market value of the company, businesses should consider the impact of investment projects on society in various aspects while carrying out investment activities.

The purpose of the thesis is to analyze the peculiarities of impact investing activities in the oil & gas sector.

In accordance with the aim of the work the following tasks are set:

1. To consider the theoretical foundations of impact investing in organizations;
2. To consider the specifics of financing sustainable projects and identify the role of various factors on the sustainable investment activities of companies of oil & gas industry;
3. To compare ESG frameworks in oil & gas industry as a benchmark for impact investors and companies;
4. To determine the role of non-financial reporting of oil and gas companies on impact investing decisions.

The object of the study is impact investing mechanisms in the sustainable business strategy of the organization.

Subject of research – the influence of the environmental, social and governmental criteria on impact investing activities of Saudi ARAMCO.

The following methods were used in the work:

1. Analysis:
    a. Systematic;
    b. Comparative;
    c. PESTLE;
    d. SWOT;
2. Synthesis;
3. Concretization;

The practical significance of the work lies in the application of the results of the analysis for identifying ways to improve the preparation of non-financial reporting of Saudi ARAMCO based on ESG-guideline made by GCC Exchange Committee.

Scientific novelty of the work lies in clarifying the term impact investment as a broader concept that combines both internal and external investments of the company.

The information base for the collection and processing of material served articles of Russian and foreign researchers, data from accredited news portals, monographic literature of foreign and Russian specialists in the field of investment activity, world economy, as well as materials of international conferences, regulations governing companies in the field of environmental protection and social well-being, information obtained from open sources of the Internet and official website of oil and gas companies from Europe, Asia, Middle East, North Africa, Russia and more.

1 Sustainable development: theoretical framework

1.1 Impact investing in a sustainable business strategy

Overcoming economic inequalities between countries, the well-being of the population, and the fight against poverty are all supposed to be achieved by increasing the volume of production, which in turn increases the pressure and negative impact on the environment, reducing the resource potential of nature. This contradiction created by the need for economic growth to meet the growing demands of current and upcoming generations and the importance of not only preserving but also improving the environment is a major challenge to the World community.

In 1983, the World Commission on Environment and Development, convened by the United Nations, approved the term "sustainable development" and its explanation through the connection of generations is widely used to this day [79]. This conference was a turning point in the perception of current and future progress in the development of the economy, as it was proposed to take a different and fresh look at the attitude towards the environment and other components of the external environment of the company. For the first time, the community accepted the idea of a company's influence on the current state of three main factors: social, environmental and economic.

The current touchstone of "sustainability" is the UN Sustainable Development Goals (SDGs). All 17 approved Sustainable Development Goals must be achieved by 2030, as agreed in 2015. The number of startups, small and medium-sized enterprises, and corporations joining the UN Global Compact is steadily growing [37]. Consequently, it can be argued that the SDGs are a specific framework that is increasingly becoming the basis for the development of long-term strategies of many companies. Thus, the SDGs are becoming indicators that turn companies' efforts and impact into measurable value.

The current situation in an unstable world economy has led to the fact that employees, clients, investors tend to work with "sustainable" companies, as they are reliable as an employer, business partner, investment object. It is also a well-known fact that only those organizations that have a strategy and clear long-term goals receive serious funding from the investors.

In economics sustainable development is commonly seen as a distinctive process of economic change that meets the needs of the current reality without compromising the well-being of future generations. The term usually refers to plans and actions that include the modernisation of industry and infrastructure, the green economy, and the fight against poverty and inequality. In other words, sustainable strategy is a company strategy that harmoniously

combines business, social and environmental direction of its activities.

Implementing such a strategy in an organisation requires three main elements presented on the Figure 1.

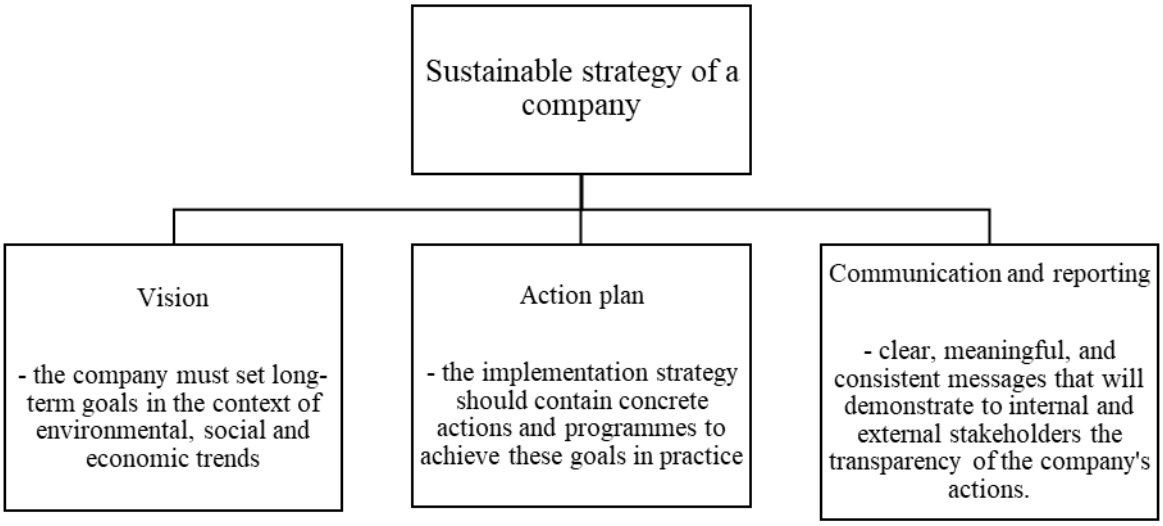

Figure 1. Elements of implementing sustainable strategy

A company's sustainable development strategy is created and improved in accordance with the factors and conditions in which companies operate. It is necessary to coordinate the sustainable development of the company with the expected changes in the external environment (political, economic, social, technological, environmental and legal) and the possibility of forming internal financial resources, the qualifications of managerial positions. Also, companies should not forget about the need to determine the acceptability of a certain level of risks associated with the implementation of an enterprise sustainable development strategy; the need for built common target strategic settings.

A well-designed sustainability strategy, in addition to its obvious benefits to society and the environment, helps companies attract investors and customers, as well as financial support from financial institutions. Considering the principles of 'sustainability', many companies are careful in shaping their corporate strategies, which include developing an investment strategy to increase their investment attractiveness.

In turn, the main purpose of the investment strategy is the development and implementation of specific actions to improve the investment parameters of the company, taking into account existing and potential conditions and constraints on resources. The investment strategy allows to control the investment process, as well as the set of operations associated with the investment of monetary resources in the implementation of both medium- and long-term projects. In other words, the investment strategy allows the rational allocation of financial

resources in the development of production (own and joint) of the company, in its social infrastructure and in securities of issuers [129].

When considering a company's sustainability strategy in accordance with investment strategy in this context, it is also necessary to understand what ESG, SRI and impact investment are. The semantics of these terms may not be obvious at first glance, so we will look more closely at the meaning behind them. It is also worth noting that there is currently no clear and unambiguous approach to the interpretation of these concepts. Often these terms are used as synonyms, sometimes researchers separate them and build a chronology of their origin. This thesis does not intend to address the hierarchy of the concepts under consideration, but rather to focus on the impact of investment on society as a whole and on the performance of companies.

The abbreviation ESG means 'environment, social policy and corporate governance'. Broadly speaking, it is the sustainable development of business, which is based on the following principles presented in Figure 2:

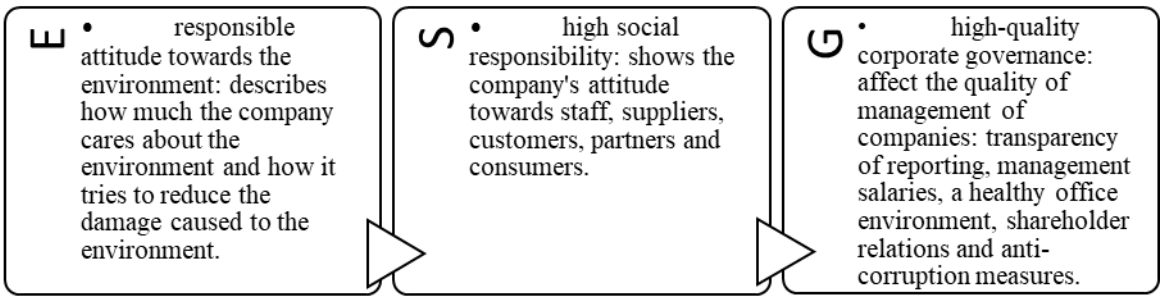

Figure 2. ESG [34]

It is acknowledged that the elements presented as principles of the ESG were first outlined by Kofi Annan [36]. He was secretary general of the UN from 1997 to 2006 and played an important role in the establishment and adoption of the UN Global Compact, which we mentioned earlier.

The next important term is Socially responsible investing (SRI). These are investments that are considered socially responsible due to the nature of the company's business. The main emphasis is placed on the focus on socially conscious investment. Socially responsible investments can be directed to certain companies with so-called good "social value" or an exchange-traded fund (ETF) [55]. One of the types of such investments is investments in communities, the main focus of such financial instruments is primarily aimed at impacting communities. The return on such investments is fading into the background.

Impact investing is action and effort or investment as a financial instrument whose purpose is to have a positive impact on social change. Also, impact investing is seen as a general

investment strategy. This term was first used by the largest foundation, The Rockefeller Foundation, in 2007. Impact investing and philanthropy are not the same thing, as the first one involves a return on investment.

According to the Global Research of J.P.Morgan [48], impact investment has four important elements presented in Figure 3 and two main goals. The first goal is to achieve a significant and measurable positive social or environmental effect. The second goal is to produce a financial result. Impact investment is most often directed towards social enterprises. The effect of such investments should be always evaluated. These investments can mobilize large amounts of private capital for social problems. However, there is still no standardized methodology for this assessment that has been established.

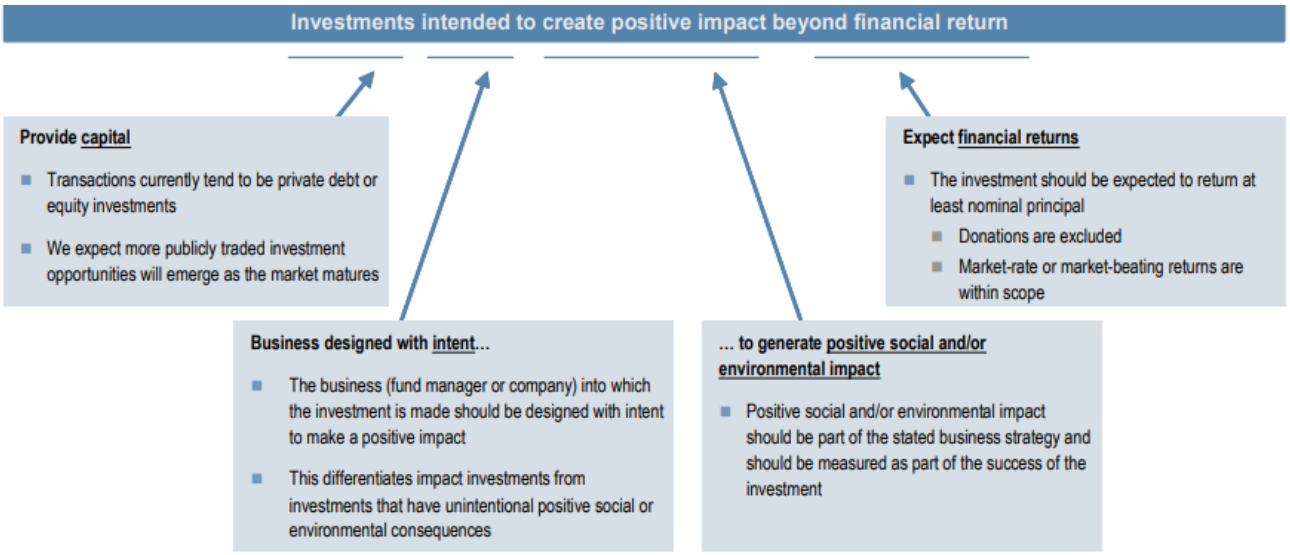

Figure 3. Defining impact investment [49]

The Global Impact Investing Network also provides its understanding of impact investing. According to information from the official website, four similar elements are also included [3]:

1. Intention of the investor. An important component of impact investing is precisely the intention of the investor (individual or legal entity) to have a positive impact on society and / or the environment through investments.

2. Expected income. The investor, making impact investing, expects a financial return on capital or, at least, a return on invested funds.

3. Different asset classes. Impact investments are made across different asset classes, such as, but not limited to, cash equivalents, venture capital, debt securities, and private equity.

4. Measurability of the impact of such investments. Impact investment market participants are required to measure and report on the social and environmental performance of their projects, thus ensuring transparency and accountability. Also, one of the duties is to inform

about the practice of investing in the impact and development of this area. We should to note that impact measurement approaches can and will differ according to various criteria, as well as the goals and capabilities of market participants.

A rising global market for impact investment is providing capital to resolve the world's most urgent problems in areas such as resilient agriculture, regenerative power, environmental protection, micro-financing, and accessible and low-cost basic amenities, including real estate, healthcare and education.

The diversity of industries inherently does not imply a unified approach to control and impact assessment of investments. However, when planning new industrial projects in order to minimize the negative impact on the environment, the procedures of Environmental Impact Assessment (EIA) and Public Environmental Expertise (PEE) are actively used worldwide [3]. However, at the operational stage of companies, elaborate procedures for assessing the impact.

Public non-financial reporting (PNR) is one option for public control of business activities. The practice of preparation and disclosure of non-financial reporting has existed and developed in the world for more than 20 years [8]. Public non-financial reports are published by many multinational and large national companies. Even some countries prepare such reports at the state and municipal levels.

Public non-financial reporting includes information about the company's activities in terms of sustainable development, social impact, reflects interaction with communities and stakeholders, and shows to the general public the results achieved by the company, including economic, environmental and social aspects. Access to non-financial information for all stakeholders enables them to more adequately assess risks and make a qualitatively different judgment about the long-term financial sustainability of a business. Non-financial reporting can be used by companies to better attract financial resources, and by all stakeholders to make more informed decisions about such companies. About 90 percent of the Fortune Global 500 and S&P 500 companies publish annual non-financial reports [8].

Thus, investing in the sustainable and fair development of society and the environment is both a sign of decency in the eyes of stakeholders and a fairly profitable business practice. When it comes to a company's sustainable development strategy, we assume that the organization understands the most rational approach to how to best use its assets, capacities, business processes, products and services, innovations to achieve a sustainable future. The non-standardization in terminology created confusion about how ESG investments and sustainability investments are distinguished, but we will consider socially responsible (SRI) and environmental, social and governance (ESG) investing as approaches to impact investing.

1.2 Tools and methods for financing sustainable projects

In the previous section, we mentioned the relationship between a company's sustainable development strategy and investment strategy. Together they, in turn, are realized through sustainable investment projects.

Generally, an investment project is defined as a plan or program for investing capital in order to make a profit in the future [49]. There are different classifications of investment projects. We will focus on some of them. For example, we can classify projects in terms of focus, such classification is presented in Figure 4:

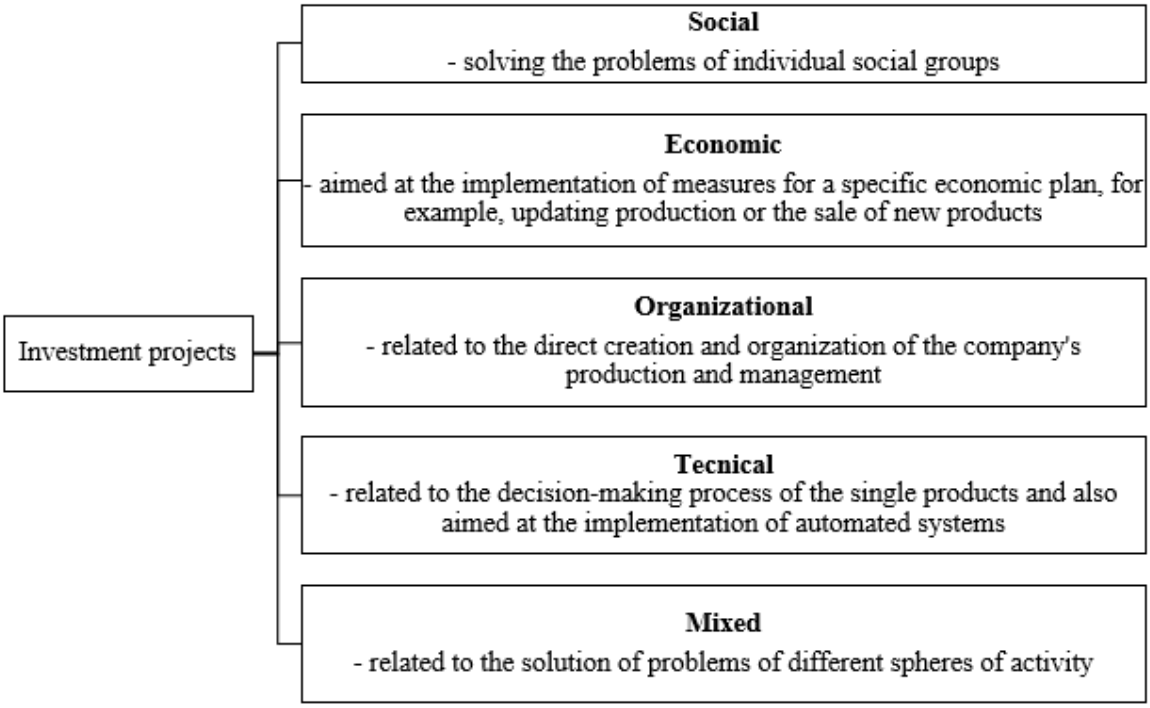

Figure 4. Classification in terms of focus [16]

One of the classifications we need to mention is the division of investment projects into two types: risky and risk-free. It should be understood that even so-called "risk-free" projects can still carry some uncertainty about their results, because it is impossible to be completely confident in the success of certain plans, because there are external factors that the organization cannot influence. Therefore, it is more correct to call the classification according to the degree of risk: low-risk, medium-risk, high-risk [52].

Since investments must bring certain financial results, they can be classified according to the same logic into: low-yield, medium-yield, and high-yield. However, it is also worth understanding that even if a project is low-yielding now, that does not mean that it will not be highly profitable in the long term. Also, we need to note that projects may certainly be

unprofitable in economic terms, but can bring positive impact on financial results indirectly, for example, by reducing costs for other investment projects of the company.

Depending on their scope, projects can be considered at the departmental, corporate, industrial, and interbranch levels as well as at the national, interstate, and international levels. We can also classify investment projects by their connections to each other. So, there are the following types, shown in Figure 5.

Independent - realisation of one project doesn't affect realisation of another	**Complementary** - realisition of two and more projects together will bring to the copmany more income
Replaceable - new project will lead to a decrease in income from the current one	**Alternative** - adoption of one project automatically leads to the rejection of another one

Figure 5. Types of investment projects by its connection with each other [49]

The aggregate of several investment projects aimed at achieving a single goal is called an investment program. The optimal investment program is the one that best ensures the achievement of the company's strategic goals in conditions of limited time and resources.

When developing an investment project, it is important to properly plan and analyze each of the phases of the project. The sequence of such phases, beginning with planning and ending with the completion or liquidation of the project, is called the life cycle. The project life cycle can be divided into "pre-investment, investment, and operational phases" [121].

For us, it is especially important to consider the pre-investment phase of the project. At this stage, a feasibility study and business plan are developed. Already starting from these documents, it is possible to judge the viability of a project and it is on their basis that investors decide whether to invest their funds and resources in it. The feasibility study as a document contains information on the adopted technological, structural and environmental solutions. The business plan includes calculations for the financial part of the project, as well as assuming the financial results that investors may receive upon completion of the project. Also, based on the business plan, investments are attracted and resource planning begins.

The next stage of the project is the investment stage. During this stage, investors who have already decided to participate in it, as well as executors and other participants, negotiate and conclude contracts, and then facilities are built and other implementation activities are carried out. At the third stage of the life cycle, the operational stage, the acceptance of facilities and the launch of production.

At the heart of investment projects are investments. The term "investment" itself is

usually understood as a set of costs presented in the form of long-term investments of capital in real or financial objects [16].

Looking at the term in a more comprehensive sense, investments are made in order to increase their value in the future. The main source of increasing value is the generation of profit. Profit from participation in the project can be obtained immediately after the completion of the project, after each stage of the life cycle of this project or by interval timing. To calculate profit in any of the above cases, it is worthwhile to take into account the time lag of the investment project - the time period between the date of direct implementation of costs and the date of profit. The investment time lag usually includes two subtypes - construction and development lags. The first sub-type is the average time between incurring costs and receiving the result in the form of acceptance of constructed object, building or facilities. The second sub-type is the average time from the date of expenditure of funds to the result in the form of launching facilities, production process, output of the first products.

To be recognized as an investment, the invested funds must meet the following criteria presented in Figure 6.

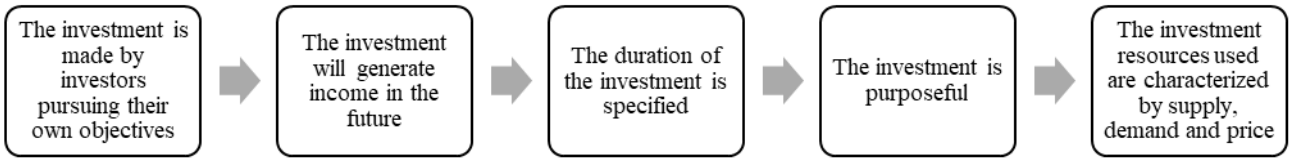

Figure 6. Criteria for investment [62]

Investments can be divided into two big groups: gross and net. When we talk about gross investment, we usually mean the total amount of funds invested. Net investment is gross investment minus depreciation deductions in a particular period of time.

Investments by objects can be:

a) Real, that are aimed at increasing the material and technical stocks and fixed capital. Such funds are invested in the construction of new facilities, technical re-equipment, increase in inventories and fixed assets, production capacity.

b) Financial, that are also called portfolio investments, they are invested in financial instruments. When choosing to invest in financial investments, the main task of the investor is to form and manage an optimal investment portfolio, which is carried out through the purchase and sale of securities. "An investment portfolio is a set of different investment values of different types, maturities, and degrees of liquidity put together" [52].

Investments also differ in terms of timing; they are short-term with a term of up to one year and long-term with a term of more than one year. It is also possible to classify investments according to the involvement of the investor. So, for example, there is direct investment, when

investors are directly involved in an investment project and accompany it throughout the entire time. And there are indirect investments, when investors limit their tasks only to financing an investment project and do not participate in decision-making in the implementation process, or they finance projects through the services of third parties - intermediaries.

Nowadays, along with the greening of the economy and increased attention to "sustainable development", investments in environmental protection measures are gaining more and more weight. In domestic and foreign literature different terms are used to designate investments in the field of environmental protection and environmental management. Thus, the following names are mainly used: "nature conservation investments", "environmental investments", "environmental investments". [31; 32], and recently it is more often possible to hear "green" and "transitional" investments.

In a broad sense, environmental investments are financial investments aimed at reducing the negative impact on the environment while achieving certain financial results for the company.

Such investments can also be divided into subspecies: supplementary and replacement investments. The first include those financial investments that are primarily made to meet the requirements of the regulatory authorities. For example, investments in cleaning equipment to comply with environmental and statutory regulations. These investments are not inherently profitable in the short term, but can be profitable in the long term.

And replacement investments are made in the qualitative modernization or rebuilding of the company's facilities from scratch. That is, the result of the implementation of replacement investments is the achievement of both environmental (meeting the requirements of environmental norms and standards) and economic (an increase in the rate of return, an increase in the price of shares on stock markets, etc.) indicators. Such investments have an impact on the environment in the form of direct and indirect effects. To the direct effects we can refer the reduction of the level of emissions from production. Usually, such effects are measurable and can be accounted for. For example, we can calculate the effect of commissioning a new plant of a company whose facilities are built on new zero-waste technologies. The effect will be calculated relative to the emissions that the company was making by producing the same product at its other plant without such technology. Indirect effects, on the other hand, are either difficult to estimate or completely impossible to measure. Such effects undoubtedly have an impact on society and the environment, but we cannot calculate their impact separately from other factors independent of a particular company.

We can also distinguish a subtype of replacement investments - product-substituting. Their essence is either to improve the technology for providing a service or producing a product

in order to make it more environmentally friendly, or to create a product from scratch for the same purpose in order to replace less environmentally friendly products previously produced. For example, an investment in refinery refurbishment "results in the production of ultra-low sulfur fuel oil" [32].

Above we have considered real "green" investments directed to the company's tangible assets. But what about financial “green” investments?

"Green" financial investments are relatively recent and it is still impossible to say with certainty that there is a perfect valuation methodology for them. Generally speaking, green financial investments are "investments in securities (stocks and bonds) and the purchase of interests in environmental ("green") funds and companies.” [74]. The main task of such funds and companies is to accumulate funds, which in the future will be redirected either to companies whose business is based on environmentally friendly ideas and products, or in individual projects that fit at least one of the following criteria:

a) Project objectives include the implementation of actions aimed at reducing environmental pollution;

b) The project aims to decarbonize production;

c) The project aims to contribute to combating climate change;

c) The project aims to preserve natural resources and biodiversity.

Along with environmental and green financial investments, there are also social investments. They, in turn, can be real and financial, but not in the sense that we mentioned earlier. So real social investments are usually investments in improving the conditions of the company's personnel, developing the infrastructure of the territory where the companies are located, or the whole region, or maybe a city or country, and so on. That is, this includes funds that companies have invested independently in the investment object. Social financial investment is an investment in securities and derivative financial instruments, the task of which is to accumulate funds through funds in social projects. The boundaries of the concept of social investment are rather blurred, so that almost anything that has a positive impact on the development of society can be attributed to social projects: for example, the construction of schools, the development of technology, the development of infrastructure, and so on. It is even considered that a portfolio of securities that does not include securities of "socially damaging" industries (production of tobacco, alcohol, weapons, etc.) is already considered a social investment portfolio [3]. Further, in the context of impact investing, we will consider social investments precisely as those that bring a positive effect, and not as those avoid causing "social damage".

We considered separately what investments are, and looked how real investments differ

from financial ones, and now let's move on to considering sources of financing.

In order to form an optimal sustainable investment strategy for providing financial resources for the investing, it is necessary to choose the most appropriate method and sources of funding.

There are two big groups of the sources of financing: internal (own capital) and external (borrowed and loaned capital) sources of financing.

The methods of financing are understood as the mechanisms that allow attracting investment resources. Methods of financing investment projects is presented in Figure 7.

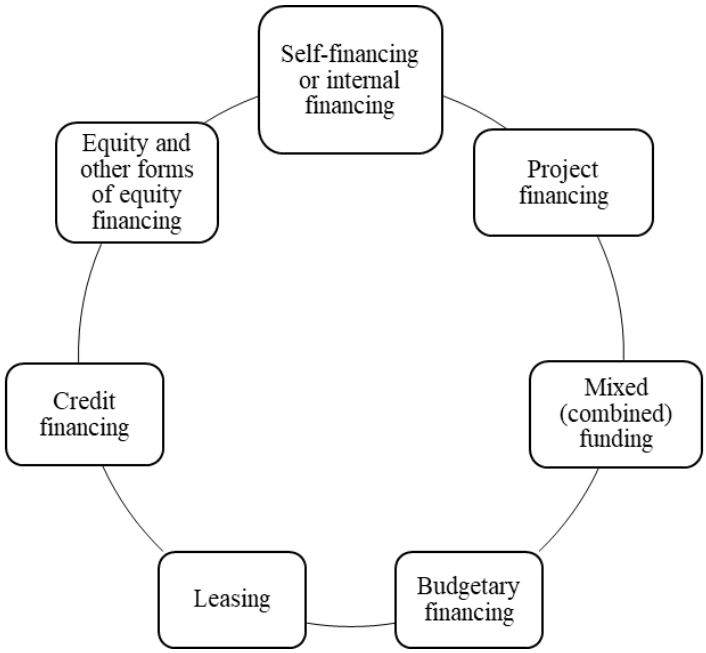

Figure 7. Methods of financing [49]

Now let's disclose the essence of each of the above-mentioned methods of financing of investment projects and name their respective sources.

Internal financing or self-financing. This method of financing an investment project involves the use of the organization's own funds. These include: authorized capital, the flow of funds formed in the course of the organization's activities, in particular net profit, as well as depreciation deductions.

Self-financing is used only for small investments. For large-scale investment projects that require quite large investments of capital, as a rule, it is necessary to accumulate both internal and external sources of financing.

External financing. This method assumes additional investments of funds of founders of the enterprise, attraction and borrowing of resources from non-financial organizations, financial institutions, population, state and foreign investors.

Joint-stock company or equity financing involves raising funds through the additional issue of shares: ordinary and preferred [45].

The corporatization has its own significant limitations. Among them are the long period of time and additional costs required for the placement of shares because the company will need to be listed, pay for the services of an underwriter, investment consultant and the state registration fee for the issue of equity securities. Only after the completion of all the above-mentioned procedures can the joint-stock company receive investment resources. But we should also remember that there is a risk that the issue of shares will not be placed in its entirety.

The cost of the issue is recouped only in the case of a significant volume of funds raised, so the application of the described method is suitable only for large-scale projects.

Other forms of equity financing include:

a) Attraction of funds through investment, share contributions and other contributions to the share capital of the company. As compared to an additional issue of shares, transaction costs in this financing method are not as high, but it should be borne in mind that the volume of attracted funds is not as significant.

b) Creation of a new company specifically for the purpose of implementing an investment project. This method of financing is carried out either through the organization of a specialized subsidiary company (this process is characterized by the allocation of assets of an existing company), or through the establishment of the first created enterprise, the share capital of which is formed on the basis of contributions of third-party co-founders. Venture financing can also be referred to here, which is connected, as a rule, with investment in high-tech, science-intensive industries and is accompanied by high risks.

Among the forms of credit financing are attraction of funds by means of investment loans and bonded loans. Also, depending on the specifics of investment projects as another form of credit financing can be a loan from the public.

Investment bank loans allow to develop a flexible financing scheme [52]. This method provides an opportunity to use the financial leverage effect, which helps increase the return on equity based on the ratio of equity to borrowed capital.

Investment credits have a number of advantages. For example, banks have no right to demand an interest rate higher than the profitability of the project, and the term of the loan may not be less than the payback period of the project. Investment projects, financing of which, based on management decisions, is provided at the expense of investment loans, most often focused on the implementation of goals and objectives to upgrade equipment, replacement, renewal and reconstruction of the technical fleet of the economic entity, increasing technical and transport capacity, opening or acquisition of additional production facilities. In general, everything that is

associated with the development of current activities. It is worth noting that the conditions of investment credit may provide for a grace period. This allows to overcome a temporary shortage of funds and facilitates the servicing of the loan, but at the same time increases its cost, because interest payments are calculated from the outstanding amount of debt.

One of the significant limitations of this method of financing is the stricter requirements of banks to companies planning to take an investment loan. In particular, banks are more careful in reviewing the feasibility of investment projects.

Targeted bond issues are another form of credit financing. They envisage the issue of corporate bonds by the company initiating an investment project. Funds from placement of such bonds are used to finance specific investment projects.

The conditions for attracting the necessary financial resources through the issue of bonds is much more favorable than the conditions of bank loans, since [49]:

a) No collateral required by banks;

b) The company-issuer has an opportunity to attract a substantial amount of funds for a long period at a lower cost of borrowing;

c) In comparison with a bank loan, the repayment of the principal on bonds usually takes place at the end of the term of the loan. This condition makes it possible to service the debt through income generated by the project;

d) Investors acquiring bonds, unlike banks, are not required to provide a detailed feasibility study or business plan. The bond prospectus provides only a general description of the project for which the funds will be used, without much detail;

e) Since bondholders are generally unrelated persons, the likelihood of them interfering in the internal operations of an enterprise is greatly reduced;

f) If, for some reason, significant complications, the issuing company can buy back its own bonds. And in some cases, buyback price may be less than the initial offering of bonds.

As with all methods of attracting financial resources, bond issues have their own limitations. For example, there are mandatory requirements for the issuing company. As in the case of the additional issue of shares, the organization has to go through a number of rather complicated procedures. The company placing the bonds must confirm its stable financial situation. The issuer must also have a sound internal feasibility study or business plan for the investment project. A company that has decided to issue bonds will have to bear the relevant costs, which will include payment for the services of professional securities market participants represented by investment companies and banks, as well as the payment of the state registration fee for the issue of equity securities.

One of the frequently used methods of external financing of investment projects is

leasing. It acts as a way of financing projects, as a rule, focused on the acquisition of fixed assets. The essence of the process is as follows: under a leasing agreement, the leasing company acquires property (both movable and immovable) from a certain supplier and leases the property on a long-term lease with subsequent redemption to a legal entity, acting as a client-lessee.

There are two types of leases: operating leases and financial leases. Below we will consider each of them.

Under operating leasing, the term of the contract is significantly shorter than the useful life of the object [127]. All the risks associated with the leased property lie with the lessor. Typically, operating leases are used to lease equipment that is required for a short period of time, such as seasonal work or a one-time use, as well as new, previously unused equipment or equipment requiring special maintenance. The rental rate under an operating lease may be substantially higher than under a finance lease.

With a financial lease, the leasing company recovers the full cost of the asset through monthly lease payments over the term of the contract and profits from the financial transaction. After full payment, ownership of the asset passes from the leasing company to the lessee company. In fact, financial leasing can neither be interrupted nor cancelled, but there is a possibility to end it earlier than the date specified in the leasing agreement if such conditions are documented and the property is repurchased ahead of time. A finance lease requires a large amount of capital expenditure.

The state budget can also be a source of funding for investment projects in the form of:

a) Investments in authorized capitals of existing or newly created enterprises;

b) Budgetary credits, including granting of investment tax credit;

c) Guarantees and subsidies.

If a legal entity, acting as a recipient of public investment, is not a state unitary enterprise, the state has the right of ownership of the share of the authorized (share) capital of such a legal entity and its property [77].

Combined or mixed financing implies the use of various combinations of the mentioned methods of financing of investment projects.

It is worth noting that as such there is no single view concerning the composition of methods of financial support of investment projects. Different sources have different interpretations of the concept of "project financing".

So, in a broad sense, project financing is usually assumed to be a set of forms and methods of providing financial resources for the feasibility of an investment project. In project financing different sources are attracted and different methods of financial support for these specific investment projects are used.

But such attraction of funds is characterized by strictly targeted use of resources. The decomposition of risk between participants of an investment project and possibility of simultaneous mobilization of different types of capital are key features of project financing.

In a narrow interpretation, project financing is a "method of financing investment projects, in which the return on investment is carried out in a special way, based primarily or exclusively on the cash income generated by the investment project, as well as the optimal allocation of all project-related risks between the parties involved in its implementation"[127].

In what follows, we will proceed from the narrow meaning of project financing.

Project financing, in addition to those mentioned, is characterized by the following elements:

a) It often requires the creation of a separate new project company;

b) The investment required to implement the project is significant in volume, i.e. the deal does not allow sponsors to invest through conventional corporate borrowing;

c) The share of debt in relation to equity is high and, as a rule, ranges from 65 to 80% of the total amount of funds to be invested;

d) It is assumed a long term of project implementation, approximately from 7 to 25 years, depending on the industry specifics;

e) The cost of borrowing is relatively higher, because lenders bear higher risks. In this case, and the collateral for loans is a property created or acquired strictly within the specific project for the project-generated income.

The distinction between project finance and other methods of financing is rather blurred. There is no single standard for project finance, because each individual transaction is unique in itself.

Thus, we have considered various sources and methods of financing investment projects. The main methods of financing are: self-financing, share financing, credit financing, leasing, financing from the state budget; combined and project financing. Each of the considered methods has its advantages and disadvantages. In the following section we will take a closer look on the role of financial institutions and their facilitation of external financing both from individuals, companies, and states.

1.3 Scope and frameworks of the impact investment market

Earlier we reviewed traditional asset classes to which some of the types of impact investments can be categorized, but some organizations, including the Global Impact Investment

Network, believe that impact investments should be separated into a stand-alone asset class because such investments require specific knowledge and skills, and the risks associated with them are more extensive because they affect the whole world indirectly. Therefore, financial institutions are organized around impact investing in a different and more unique way. We will look at the market for sustainable financial investments.

According to the "2022 Market sizing report" made by the GIIN, overall impact investments market accumulates more than 1,165 trillion USD worldwide [3]. This study included 1,013 organizations located primarily in North America and Western Europe. A map of the distribution of representation is shown in Figure 8.

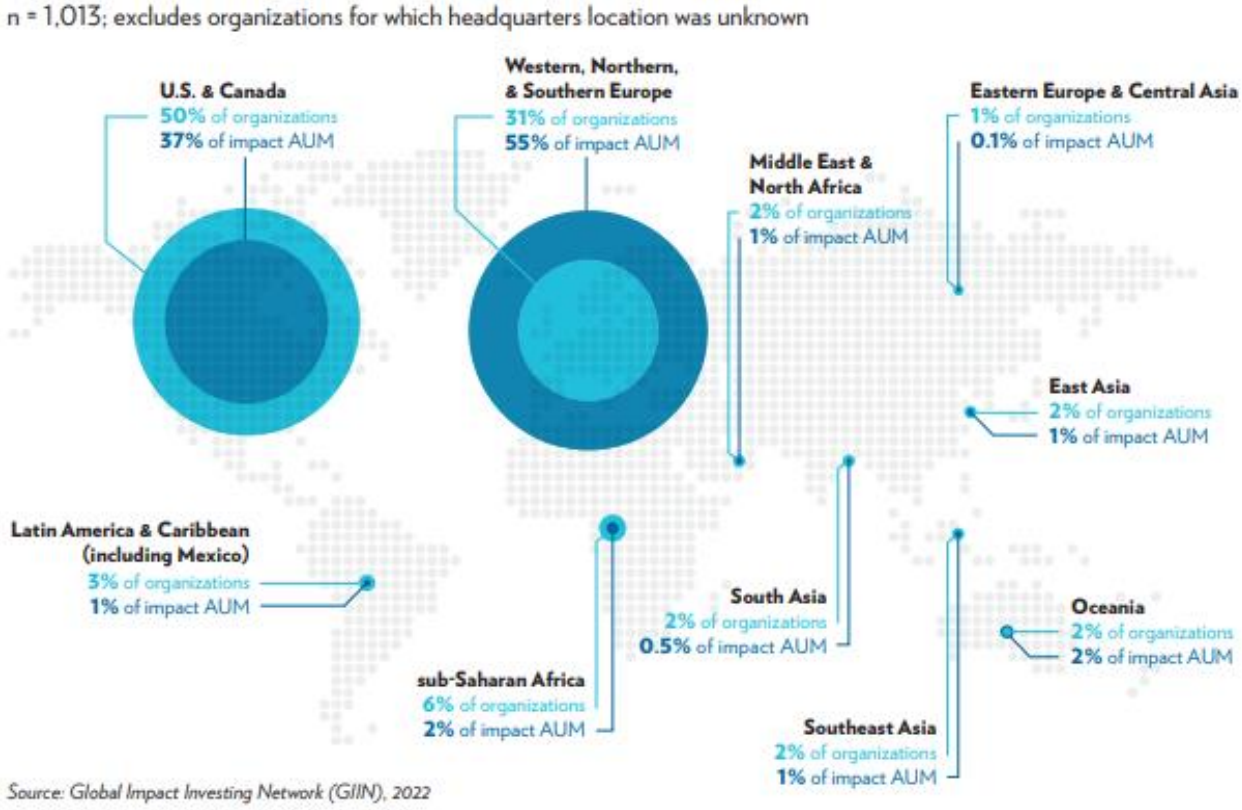

Figure 8. Organizational representation and impact assets under management (AUM) by headquarters location [3]

The presented methodology does not claim to be accurate, since it based on the calculation of the average value of portfolios of financial institutions.

These data are presented in the report in order to review and define a general look on the geography and development of the sustainable financial market. That is why while talking about sustainable investment we need to consider various data sources to create a more objective picture. The participants in the global market for impact investing team up to share experiences with each other and to promote ideas based on the ESG concept. The examples of such organizations and their researches are presented in Table 1.

Table 1. Organizations researching impact investing [3]

Organization:	Global Sustainable Investment Alliance	Impact Investing Institute	RisCura	Indian Impact Investors Council	Social Innovation and Investment Foundation
Logo:	GSIA	impact investing institute	Graduate School of BUSINESS RISCURA	IIC IMPACT INVESTORS COUNCIL	SIIF Social Innovation and Investment Foundation
Report name:	Global Sustainable Investment Review	Estimating and describing the UK impact investing market	The African Investing for Impact Barometer	2021 in Retrospect	GSG-NAB Japan
Geography:	Global	United Kingdom	Sub-Saharan Africa	India	Japan
Focus:	Sustainable & responsible investing	Impact investing	Impact investing	Impact investing	Impact investing
Published:	2020	2022	2020	2021	2021
Key findings:	• Global sustainable investing assets amounted to USD 35 trillion in 2020, accounting for 36% of global assets under management • Since 2014, sustainable investments as a proportion of total investments have grown across every region except Europe	• When this study was conducted in 2020, the impact investing market size in the U.K. was GBP 58 billion • Impact investing makes up less than 1% of total investment activity in the UK • Three out of four investors plan to increase the amount of capital dedicated to impact investing by at least 10% in the next five years	• Impact investing in SSA attracted USD 65 billion while ESG investing captured USD 337 billion • South Africa accounts for 84% of impact investing assets in SSA	• In 2021, the impact investing market size in India reached USD 6.8 billion • Despite market growth, the number of impact investing transactions has decreased by 12% since 2019 • The financial inclusion sector has attracted the largest share of impact investing funds (27%), followed by technology (19%)	• The impact investing market in Japan has roughly doubled every year since 2016, reaching USD 12.4 billion in 2021

In general, transactions with sustainable investments in the form of securities and derivatives are subject to the rules of the financial market. The financial market, in turn, is defined by its multi-level nature, its structure by institutions is shown in Figure 9.

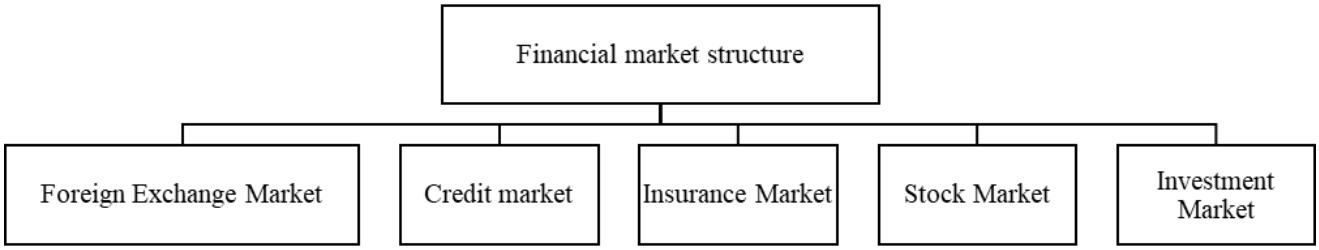

Figure 9. Financial market structure [52]

Financial markets have an organized form (for example, stock exchanges), an inter-organizational form (interbank market), and a retail form (interaction of financial institutions directly with companies or individuals). For instance, retail financial market participants such as banks can provide opportunities for their end clients to invest in pre-compiled investment portfolios with all the options to address a particular social or environmental issue. In this way, banks are attracting an increasing number of private clients interested in environmental and social initiatives.

The financial market is subject to regulation by the state in whose territory such transactions take place and by international laws. An example of the regulation of sustainable investments at the state level is the Decree of the Government of the Russian Federation №1587 from 21.09.2021 "On approval of the criteria for sustainable (including green) development projects in the Russian Federation and the requirements for the verification system of sustainable (including green) development projects in the Russian Federation"[79].

Standards are also created to regulate the stock market. For the market of sustainable investments standards are more unique, they are developed by both states and international organizations. On the worldwide market one of the leaders in standards development is undoubtedly the European Union. The biggest efforts were been made in a taxonomy in the field of ecology. The taxonomy has a key impact on business in the form of requirements for transparency and disclosure of non-financial information. The EU environmental taxonomy is complemented by more detailed written Delegated Acts (the first Delegated Act was approved in 2023), which can be amended in the future depending on the world situation. The Taxonomy and the Delegated Acts apply primarily to those industries which have the potential to affect the achievement of environmental objectives to a greater extent [37]. These include, for example, the nuclear power and gas industries.

As for the taxonomy in terms of social change - so far there is no approved document. In 2023 it is expected to develop and adopt a project in this area. One of the main criteria of the social taxonomy is not to contradict the existing green taxonomy.

Frameworks are also developed by financial institutions such as credit unions, investment banks and others. These financial institutions also create ESG ratings that assess companies' performance and exposure to environmental, social and corporate risks. Such ratings act as one of the benchmarks for investors to decide whether to invest in and purchase securities.

According to various estimates, there are more than 150 indices and ratings that can be attributed to sustainability [35]. Accordingly, each of them has its own methodology for assessing the performance of a particular company. One thing is common is that sustainability or ESG reporting are mandatory for companies wishing to be at the top of the rankings. We have

previously touched on the topic of non-financial reporting, but in this case, in order to participate in the ratings, most likely the companies need verification of these reports by external auditors (audit companies and individual auditors) or through public assurance (by business unions, associations, movements, etc.). Such verification allows stakeholders to ensure that business activities are correctly represented in non-financial reporting, and that the metrics and indicators stated therein are valid and recognized by external experts.

One of the most developed ESG rating systems is the rating methodology by Morgan Stanley Capital International. Not only companies, securities and derivatives, but also mutual funds, ETFs and even countries are evaluated.

This methodology takes into account the differences in industries and the specifics of a particular company.

Figure 10 presents the data metrics used to compile this ranking.

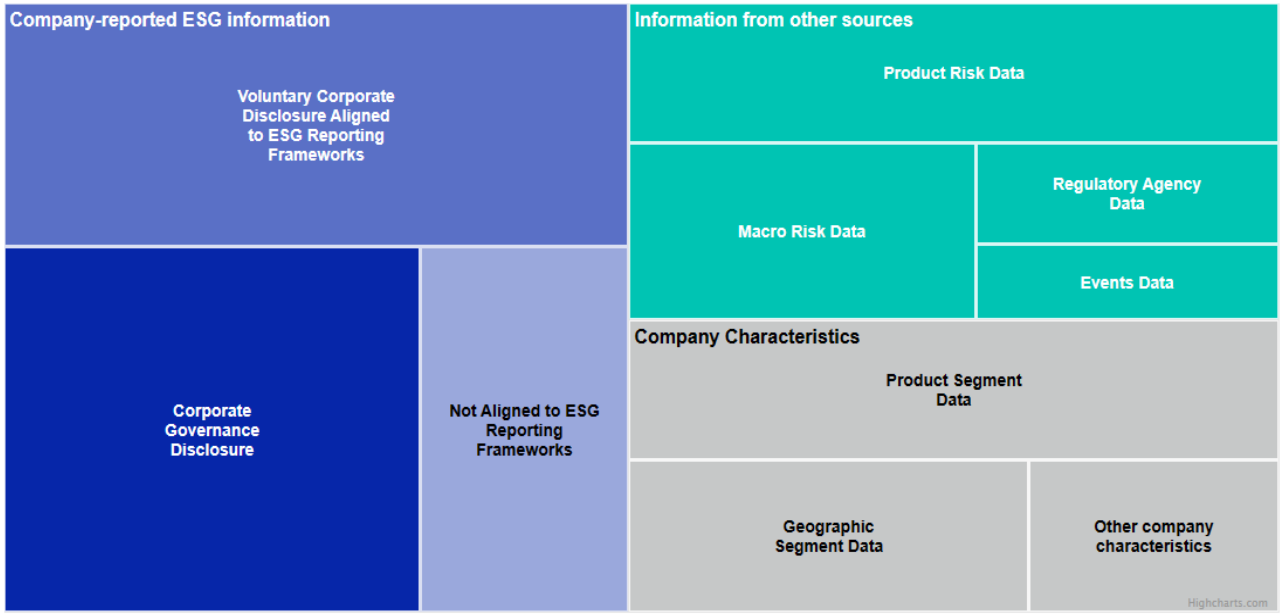

Figure 10. Data metrics for evaluating by MSCI ESG [48]

The assessment is based on assigning scores to companies and securities according to the 35 most important issues, chosen by MSCI experts, related to the activities of the investee.

The scores are then converted into a score from laggard (CCC) to leader (AAA, AA) relative to other investees under consideration.

A large part of the sustainable financial market is occupied by sustainability-linked bonds. Among them, green bonds are leaders.

In the Figure 11 presented dynamics of volume of green bonds issues in the world, and according to it in 2021, the volume of placements amounted to USD 578.4 billion, according to the results of the first half of 2022 - USD 211 billion [55].

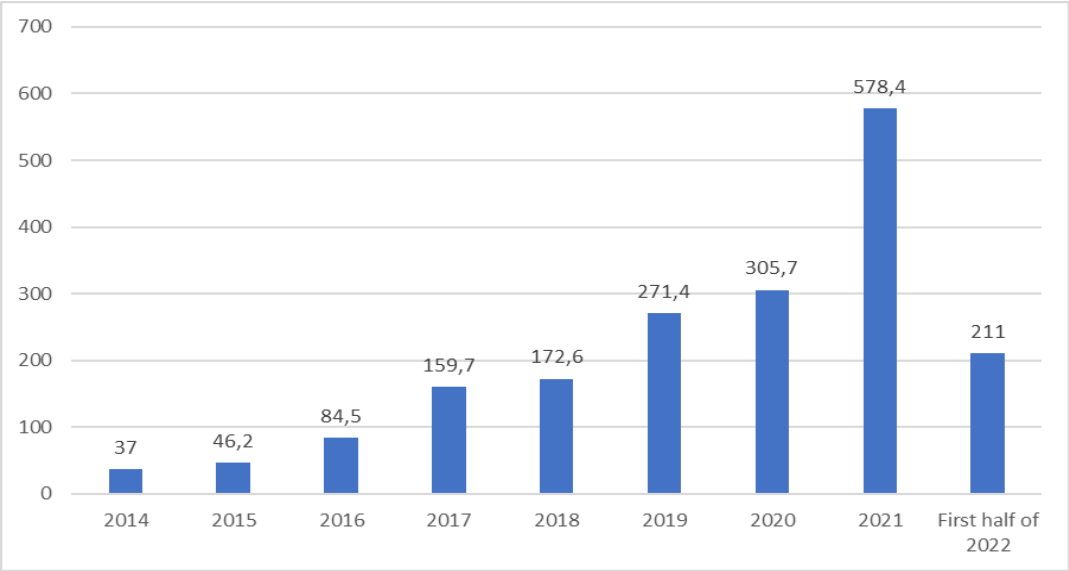

Figure 11. Volume of green bonds issues in the world, USD billion [55]

International standards have also been developed for green bonds. So, for example, in order to be admitted to the Moscow Stock Exchange, a bond issue or issuer must adhere to the principles developed by the Climate Bonds Initiative [56], among others. In addition to developing standards, the Climate Bonds Initiative collects and systematizes information regarding environmental changes in the world, helping companies and countries improve their climate change policies.

Also, one of the most elaborate standards for green bonds is the European Green Bond Standard [37]. The European standard for green bonds was recently agreed on March 1, 2023, but ideas have been around since the beginning of the twenty-first century. It is designed primarily to combat greenwashing. Greenwashing is camouflaging as ecological projects and products. With the increasing popularity of eco marketing, some market players are looking for opportunities to disguise their activities as environmentally friendly, while actually either not indicating any positive effect on the environment, or in the worst case, even harming the nature. The details of the standard have not yet been published, but its creators hope that this document will become the "gold standard" for all participants in a sustainable financial market.

Thus, we have considered the frameworks of the market for sustainable and impact investments. At the moment, standards are being developed and adopted, and market participants should listen to and follow. However, a variety of methodologies can be disorienting for companies, so many companies prefer to focus on the most elaborate, popular rating methodologies and on the recommendations of supragovernmental organizations. The European Union is undoubtedly the leader in the development of principles and rules in the market for impact investments. Most countries, investors, issuers and underwriters are guided by European standards when making decisions about sustainability investments.

2 Impact investing by multinational oil and gas companies

2.1 Factors and risks influencing the sustainable strategy of oil and gas companies

Investment activity is a complex process that requires consideration of various factors that influence decision-making. Among other things, it is important to take into account a number of specific features of the particular industry to which the organization belongs.

A significant part of the global economy is occupied by companies of the oil and gas sector. Examples of specific factors affecting the oil and gas industry's investment activities include the industry's strong reliance on environmental concerns and its relatively small oil and gas resource base.

There are numerous classifications that enable systematizing the impact of elements on the development of an investment strategy and the execution of an economic entity's investment activity. We will only take into account the primary components, grouping them into the macroeconomic, microeconomic, and resource and raw material categories based on the peculiarities of the oil and gas industry.

There are wide variety of elements that have an impact on oil and gas businesses' investment activities on a macro level. They include the overall status of a nation's economy, the rates at which the world's top economies are expanding, changes in the value of national currencies relative to the US dollar, inflation rates, and adjustments to the tariffs that govern the movement of gas, oil, and petroleum products. It is crucial to keep in mind that multinational oil and gas corporations operate outside of their home country (the nation in which the organization is registered) when thinking about them. One of the most important factors for these organizations is the legislation of the states in which they operate, including stricter measures related to environmental protection. These organizations own branches and subsidiaries, most frequently across several countries, where they control the production and sale of goods or services.

Terms of operation under international agreements, particularly the OPEC+ agreements on limiting production and sustaining prices, may also be included [68].

The impact of the investment climate, which plays a leading role in attracting foreign investment, is particularly worth highlighting. The investment climate is the economic, political and social conditions that determine the potential benefits and possible risks of investment activities in a particular country. That is, the more stable the political environment, more transparent the legislation, more attractive the tax regime and benefits provided, the more likely the participation of investors in investment projects.

Thus, high level of corruption at all levels of government, weakness of state institutions and bureaucratic barriers that accompany investment projects at all stages of their implementation can be called as constraining macroeconomic factors of investment activity in our country.

The role of information factor is increasing in the modern environment of rapidly changing environment, because it is timely information about the current state of the world oil and gas market, trends of its development, as well as the availability of necessary information about the strategies and goals of competitors allow the company to develop appropriate investment strategies. Based on forecasts on the oil and gas market organizations assess the attractiveness of investment projects using appropriate methods allowing to determine and calculate financial and economic indicators as precisely as possible as well as make a decision on participation in these investment projects.

However, not all macroeconomic factors can be predicted and taken into account correctly. A good example of very recent events on the world market is the drop in the price of European Brent oil in April 2020. Against this background, the Russian ruble fell on the Moscow Exchange (the dollar passed the mark of 77 rubles, and the euro - 83 rubles). It is believed that the main reason for the drop in oil prices is the imbalance existing in the market due to the measures introduced by the countries to limit the spread of the coronavirus [75]. In the spring of 2023, oil prices also showed a hard-to-predict dynamic. In general, in the first quarter, prices showed a decline comparable to the decline in the already mentioned 2020. A strong catalyst for the decline was the increase in the U.S. Federal Reserve's rate, and in April, after OPEC+ countries decided to reduce production, prices went up again [63]. The unpredictable change in oil prices is a characteristic feature of the oil sector of the economy. It is the main source of uncertainty in the oil industry bearing considerable investment risk.

Despite the difficulty of forecasting changes in oil prices, experts still analyse the trends that can describe in general terms the future that awaits the oil and gas industry, and companies should consider these studies when developing investment projects at all levels. A recent forecast published by the British consulting company Wood Mackenzie on a possible scenario for the energy transition is interesting [91], which also touches on the impact of environmental factors and global greening trends on the activities of oil and gas companies. According to experts, the cost of oil could fall to 10-18 dollars per barrel by 2050, if the world community manages to agree on a more active transition from polluting hydrocarbons to clean energy sources in order to curb climate change within two degrees. Consulting company experts predict that rapid electrification will be able to replace oil, and there will be a shift from coal to gas. Wood estimates that in 2050 the demand for oil will be 70% lower than it is now, and the production

capacity of the refining sector will be reduced to one-third of the current situation. In contrast, with regard to gas, Wood Mackenzie experts predict a revolution comparable to the change in the scientific paradigm about the cosmos from an Earth-centered to a heliocentric model [39].

However, we should not forget that this forecast may not come true, as the energy market has been shaken by several all-too-familiar factors. No one knows what will happen even before 2050. According to Bloomberg's analysis, negative changes in the oil and gas market have been observed since the beginning of 2021. The factors of these changes range from the COVID-19 epidemic, the recovery from the lockdown and the new shocks associated with the special military operation. The last-mentioned event led to fairly unfortunate events in the global economy and energy crisis. And the price of gas, which many experts consider to be a more environmentally friendly energy source compared to oil, has reached record levels as is shown in Figure 12, and this fact has also increased the price of electricity in Europe. As we found out earlier, it was Europe that took the biggest steps toward greening the economy, but because of the crisis there is a risk that these initiatives will be suspended.

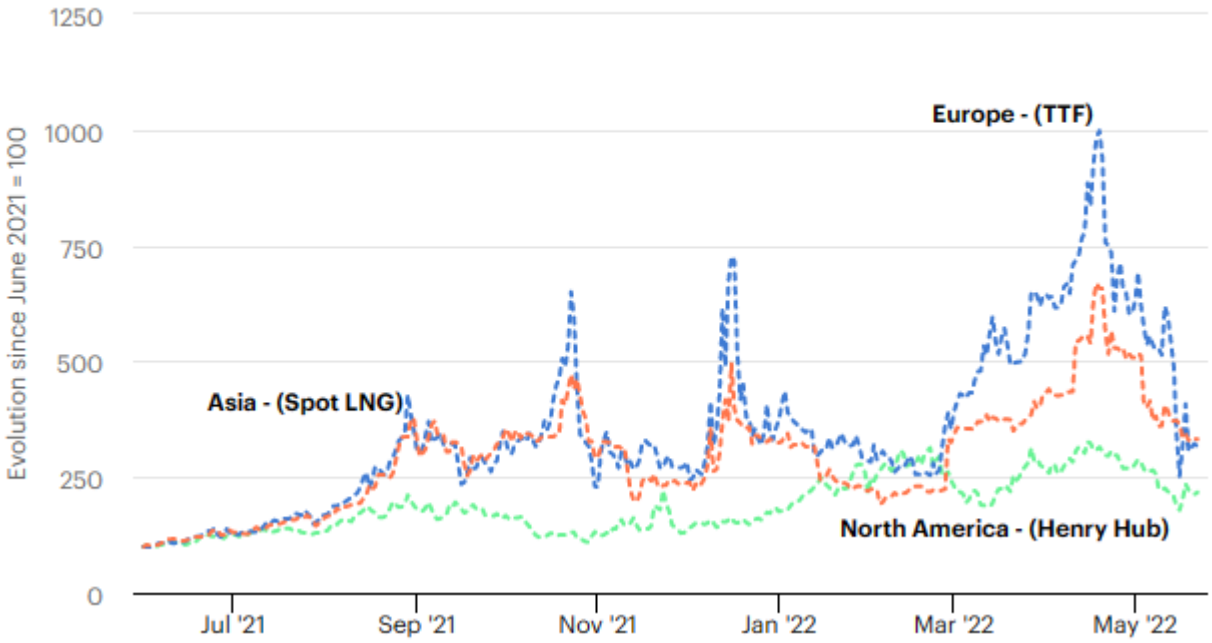

Figure 12. Evolution of key regional natural gas prices, June 2021-October 2022 [57]

Significant price increases have also contributed to skyrocketing inflation. Historically dependent on Russian exports, Europe is looking for new ways to combine "green deal" and fuel sourcing. Such uncertainty also affects companies in energy-intensive industries.

According to some researchers [57;128], the problem of the global energy crisis was not that serious, even despite the energy "disaster" in the 1970s. The main reason for this is the shortage of energy resources of all kinds, not only oil as it was in the last century.

A peculiarity of the energy market is the relationship between the prices of different types of fuel. Thus, due to an increase in gas prices, the prices of other energy sources go up, which raises the price of electricity.

At the moment, the market is building a new liquefied natural gas infrastructure in order to return and overtake the international trade volumes of the past years. But experts at the International Energy Alliance believe it may take years, if not decades, to build the new infrastructure [57].

While at the beginning of the century Europe was confidently building goals and plans for a green economy and offered gas as an alternative to oil in the transition to a clean and zero-carbon economy, it is now quite difficult to assert the reliability of natural gas due to recent events. However, the environmental condition of the planet is also not improving year by year. It is becoming increasingly difficult to develop the economy while preserving the environment. So, for now, we can only rely on the good faith of individual companies in their carbon intolerance transition policies.

Why is it so important to consider ESG factors, especially ecological ones? Climate-friendly policies affect investors in a direct way. As we have repeatedly mentioned, there is a growing interest in environmental initiatives on the part of investors in the market. There is also a tendency to withdraw investments from fossil fuel-related industries. As we discussed in the last chapter, financial investments are predominantly made by financial institutions. And for example, the international investment company Black Rock has issued a statement expressing its intention to withdraw investments from companies that do not take steps toward carbon neutrality by 2050. And the World Bank is considering expanding its strategy to combat climate change by excluding funding for projects directly related to oil and coal around the world and even phasing out investments in the gas sector [23; 118]. This indicates that the attraction of financial resources in these sectors of the economy will only become more difficult.

We have analysed the macro environment factors. Now let's move on to the micro level.

The micro level includes those factors that are related to the activity of the company itself. Thus, we can refer here to the state of turnover and fixed assets directly involved in the production and processing of oil and gas, as well as the qualification of the management personnel, expressed in the quality of management of the organization - that in the acronym ESG is hidden in the last letter G - governance. Here we can also include the level of technology of the company - how well it meets modern requirements, whether the processes of the organization are waste-free, how the system of treatment facilities is built, and so on. Moreover, to the already mentioned factors it is worth adding the stage of life cycle and the size of the company. Thus, at the stages of "childhood", "adolescence" and "early maturity" the share of investments in fixed

assets prevails, and at the stage of "final maturity" the share of financial investments increases significantly. The size of the company determines the level of financial flexibility. For example, multinational oil and gas companies have a high level of financial flexibility, because they have the opportunity, unlike small and medium-sized companies, to make financial investments on a larger scale. A thorough analysis of the internal environment or so-called resource potential is aimed at finding out what opportunities a company has, how rationally it uses the available resources, what sources of financing it needs to choose to ensure its investment activities, and in what ways it can improve the efficiency of its functioning.

A specific factor for the oil and gas industry is the non-renewability of the raw material base. Also, oil and gas companies are very dependent on climatic and geographical conditions, because production sites can be located in places that are quite difficult to access. For example, in Russia, most oil and gas fields are located in Siberia and the Far East, as well as in the depths of the Arctic seas. Due to climatic conditions the process of development of such fields is much more complicated: more capital investments and better technologies are required. It is also necessary to take into account that oil and gas reserves indicated in barrels of oil equivalent in the balance sheet of an oil and gas company are exhaustible, with the lapse of time production in the field decreases. Oil and gas companies need to develop and exploit new fields both on the territory of their own country and on the territory of foreign countries through, for example, concession and production sharing agreements [78].

So, the investment activity of transnational oil and gas companies is influenced by many factors. It is important for the company to analyse and take into account these factors, because in this way it is possible to form and implement an adequate investment strategy which allows to provide high rates of economic development and increase the market value of this company.

Although investment projects which are implemented in the oil and gas sector are rightly considered to be one of the most thought-out, calculated and prepared in comparison with other industries, since the oil and gas complex is concentrated with qualified and competent personnel with high wages, there are no initial guarantees in the successful implementation of such projects. With the influence of many macroeconomic factors already mentioned there are significant production and financial risks. In addition, in the international oil and gas sector there are specific risks that apply to both international oil and gas companies and national oil companies.

Risk is "a situational characteristic of the company's activity, which reflects the uncertainty of its outcome and the possible adverse consequences in the event of failure. [16] It is necessary to understand investment risk as a possibility of unforeseen financial losses in conditions of uncertainty of the investment activity, expressed in a decrease in profitability, and

loss of capital.

There are different classifications of risks of investment activity. For example, the classification according to the stages of the life cycle of the investment project, shown in Figure 13. The life cycle of an investment project is accompanied by investment and entrepreneurial risks. At all stages of the project there are general economic, socio-political, legal and unpredictable risks.

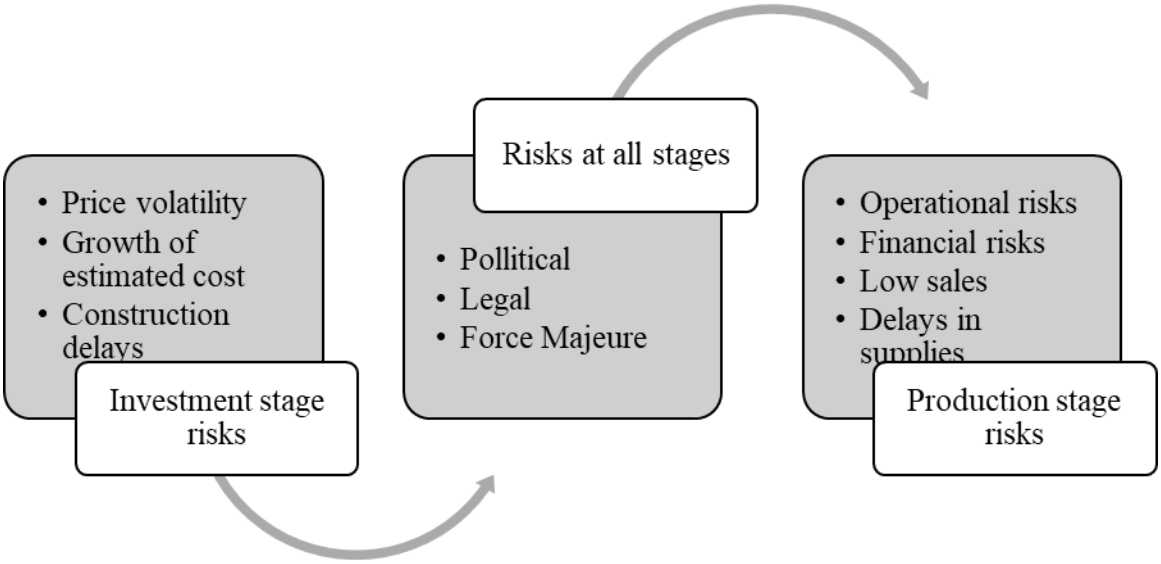

Figure 13 - Types of risks at the stages of the investment project [16].

Investment projects of oil and gas sector in a high degree are subject to risks of industrial, financial, geological and other types. In addition, the problems lie in the development of investment projects themselves - the risk is taken into account by the factor laid down and is subjective in nature, and its value throughout the project often does not change.

In general, the oil and gas industry is considered as high-risk. Many projects in this industry are multi-budget and long-term, and the risk of cost overruns is extremely high. There can also be frequent delays in construction timelines. And also because of a huge number of factors and the difficulty of forecasting, some projects can simply be terminated and liquidated, being recognized to be a failure. The example of Chevron (USA), whose project to develop the Gorgon gas field in Australia resulted in cost overruns of 41 percent, is illustrative [74].

The mentioned problems in projects, as a rule, are the result of unclear distribution of responsibility for decisions, both at the design and at the stage of implementation. In joint ventures and consortiums, when considering an investment project, an interested party - the operator - is singled out, this company plays the leading role, proposing a development program and defining a plan of action. But this model often does not fully take into account the plans and strategies of other participants, which leads to delays in approval. Project documentation can go

from one participant or division to another for months at a time. So, there are difficulties with management and performance control.

As for execution problems, they are most often caused by insufficient or overly hasty planning, inaccurate calculations that lead to an incorrect assessment of the necessary resources and technical capabilities, inefficient procurement and logistics processes, as well as initially incorrectly calculated deadlines, estimated too optimistically [62].

Risks often arise due to the lack of reliable sources of information about the necessary internal and external factors. Lack of information is a type of uncertainty [62], which in turn can also be expressed as unforeseen randomness, that is, the unexpected occurrence of various circumstances that may affect the results in the future, as well as the uncertainty of counteraction, which implies the unpredictability of the behaviour of competitors, customers and partners. As an example, we can mention the following: the inability to predict the violation or non-fulfilment of the conditions of a contract concluded with a consumer or a partner; reduction of prices for a number of products on the part of competing organizations.

In Russia, due to changes in the economic and political situation over the last few months, many domestic oil and gas companies are reconsidering their investment plans, because changes in the exchange rate of the national currency to the US dollar, a sharp drop in oil prices [75] reduce the profitability of many planned investment projects to almost zero. The political situation, the pandemic conditions also make it difficult for foreign firms to find investment.

Among other things, great dependence on natural conditions is a source of a number of risks accompanying investment activity of oil and gas companies, this includes insufficient level of geological exploration of the territory. Also great is the influence of man-made and natural force majeure, in particular the risk of occurrence of unforeseen natural disasters near the places of oil and gas deposits.

Thus, analysing all the aforementioned, the main risks are uncertainty and insufficiency of analytical data. Investment projects of oil and gas industry are usually characterized by a long duration, a number of them are designed for twenty years and more. In conditions of uncertainty, it is difficult to accurately predict the impact of all factors. Not all factors affecting the company's activities can be foreseen and calculated. For example, it is practically impossible to predict how much oil prices may fall (market risk), how and when the exchange rate of the national currency will change against the US dollar (currency risk), and whether new sanctions will be introduced by other states (external economic risk). Organization of financing oil and gas investment projects is a rather labour-intensive process that requires taking into account as many factors as possible, as well as an adequate assessment of potential risks, and this will be the subject of the next paragraph.

2.2 Specifics of sustainable investment projects financing in the oil and gas sector

According to the data of Deloitte's outlook research [4], the oil and gas industry generated record profits in fiscal 2022, providing sufficient cash flow to finance its strategies in 2023. And even though oil and gas companies recognise external environment uncertainties in the year ahead, they also have a clear commitment to secure supplies in the short term and transition to greener energy in the long term.

With the principles of "sustainability" in mind, many oil and gas companies are carefully shaping their corporate policies, which include developing an investment strategy to increase their investment appeal. Oil and gas companies' channel significant funds into so-called socially responsible, "green" and "transition" projects.

The semantics of these terms may not be obvious at first glance, so let's take a closer look at the meaning behind them. For example, socially responsible investments by oil and gas companies may include investments aimed at improving the well-being of society. The boundaries of this notion are quite blurred and may include quite a wide range of directions. However, the main ones are, as a rule, development of regional infrastructure, which may include opening of new hospitals, educational institutions (both basic and additional education), cultural, sports, research facilities, charity events, support for vulnerable and needy population groups, support for the company's own employees, improvement of conditions and safety of their work and quality of life in general. An example of this is PJSC Gazprom's social project: the Russian Regions Gasification Program [44].

It is more difficult to distinguish between the concepts of "green" and "transitional. There is still no sufficiently clear normative act that allows us to determine exactly which category an investment project aimed at improving the ecological state of the environment through the introduction of "clean" technologies belongs to. The taxonomy of "green" projects is becoming stricter every year, as the list of projects that meet the criteria for classification as "green" by European regulators is gradually narrowing. Thus, while in 2019, companies from China were able to certify their projects aimed at improving sustainability and the introduction of "clean" technologies in the operation of coal-fired power plants as "green," in the European Union recovery plan released and published in May 2020 after the crisis caused by the COVID-19 pandemic, even gas-related projects can no longer be classified as "green"[37]. Such projects will now be classified as "transitional" because they also use fossil rather than alternative fuels and are generally intended to replace the process of extracting energy from coal, that is, the actual "transition" from coal to gas.

Investment projects that can be classified as sustainable for the oil and gas industry are

primarily aimed at the following goals:

1. Reducing waste, emissions and preventing leaks of hazardous substances;
2. Reducing the consumption of water and non-renewable resources in the extraction of minerals;
3. Ensuring safety, maintaining health and respecting the rights of employees.

To learn about the specifics of financing sustainable investment projects of companies in the oil and gas industry, it is worth taking a deeper look at the specifics of financing investment projects of oil and gas companies in general, as this will give a deeper understanding of the peculiarities of companies in this industry.

The main distinguishing feature of the oil and gas industry is the vertical integration of companies. In other words, oil and gas companies control three levels of the production cycle, which cover the entire production and marketing process, from exploration of hydrocarbons to processing and delivery of final products to consumers. These three levels are: "upstream" (upstream and oil and gas production), "midstream" (transportation from wells to refineries) and "downstream" (all other stages: refining, storage and marketing). You can see Figure 14 for details.

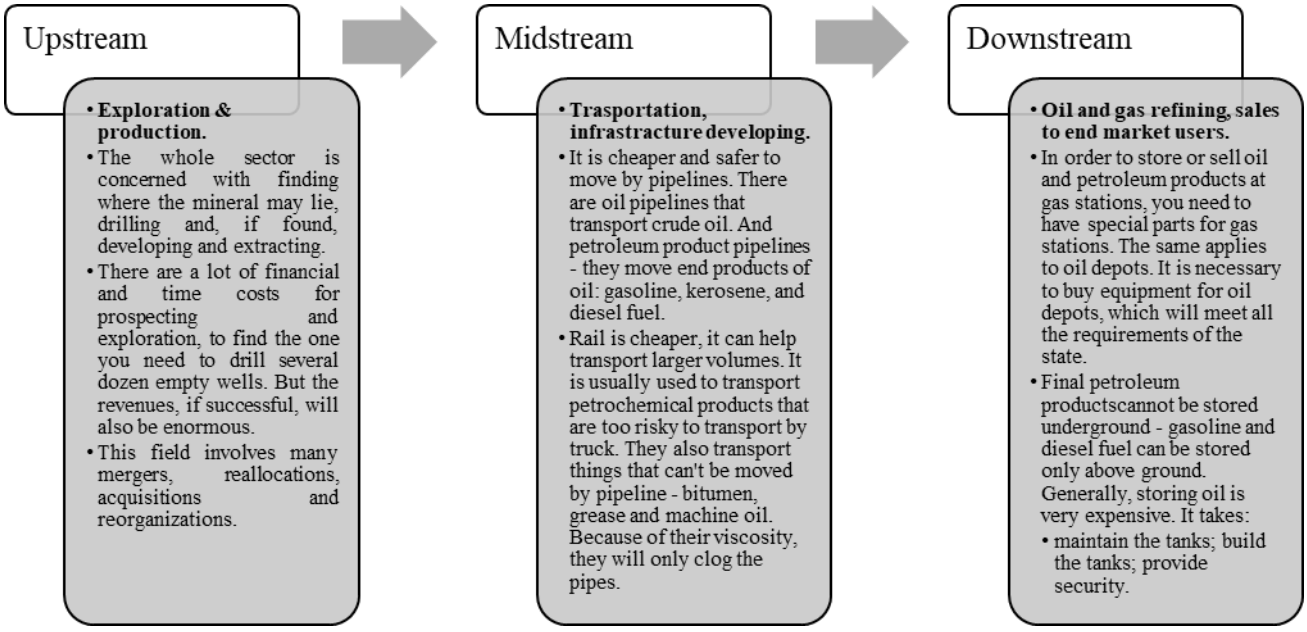

Figure 14. The three stages of business processes in oil & gas industry [62]

Another feature is the broad diversification of major oil and gas companies: in addition to the production, processing and sale of oil and gas, companies go beyond traditional products, offering the market new fuels and renewable energy sources.

Typically, investment projects of oil and gas companies are focused on the development of natural hydrocarbon deposits and require significant investments. However, in the last decade

every year projects related to the introduction of more environmentally friendly technologies at all stages of production have begun to acquire significant importance. More and more companies are investing in modernization of their refineries and in ensuring accident-free operation.

Methods of financing oil and gas investment projects, as well as investment projects in other industries, are the following: from company's own funds and financing a company at the expense of borrowed funds. Own funds of oil and gas companies, as a rule, are directed to investment projects of small scale. External financing of oil and gas investment projects is of much greater interest which includes additional issue of shares, corporate loans, investment lending, leasing, financing based on public private partnership and project financing.

Investment lending often means an investment bank’s loan to long-term projects. But in order to get such a loan the companies must meet the requirements of the investment banks. For example, Japanese banks MUFG, Sumitomo Mitsui Banking and Mizuho Bank are developing criteria for evaluating "green" projects, which will be relevant for the Asia-Pacific region [54]. This will also include criteria for evaluating projects related to transition technologies, which will be of particular interest to companies from the oil and gas industry.

For the European and American markets there is a set of current standards to evaluate projects aimed at reducing emissions: Voluntary Carbon Standard, Plan Vivo, Gold Standard, American Carbon Registry, Climate Action Reserve, Verified Carbon Standard Program. These standards contain a different methodology of accounting for reducing the carbon footprint, moreover, they cover different countries and regions. Investment projects can be related to biodiversity conservation, pollution prevention, improving public welfare, health care and job creation [68]. This can also include innovations aimed at reducing the costs of introducing existing climate technologies into the production process, including the transition to alternative energy sources.

Project financing is the most competitive and popular type of financing. Project financing is implemented in three ways: nonrecourse, full-recourse and limited recourse financing. The peculiarities of each are presented in the Table 2.

Table 2. Project financing types [93]

Nonrecourse finance	**Full-recourse finance**	**Limited recourse financing**
The lender assumes all risks, regardless of their type, associated with the implementation of the project, assessing only the cash flows generated by the project and directed to repay loans.	The lend er does not assume any risks associated with the project, limiting its participation to the provision of funds under the guarantees of the project sponsors.	The lender has the legal right to certain, but not all, of the borrow er's assets if the borrower defaults.

As we found out in the previous paragraph when we looked at external factors and risks, the oil and gas sector is highly influenced by price changes. Given that projects are often long-term, each stage must be flexible in terms of financing, because at any time the sources will need to be revised. Projects aimed at the production and processing of liquefied natural gas are characterized by the fact that the entire production chain is often formed simultaneously. That is, all stages of the production process, from exploration of natural gas deposits, processing at liquefaction plants, transportation by LNG tankers, regasification terminals and pipelines are already approved at the planning stage. Huge risks arise at all of these stages; no company in existence today is capable of taking on this amount of uncertainty on its own. Risks in such projects need to be shared between several participants.

Project financing in the oil and gas industry, as a rule, is carried out under the scheme "future deliveries payments", where the participation of three or more parties is envisaged. These parties act as lenders, project and intermediary companies. It is worth paying attention to the fact that the intermediary company can be established by the lender, which is a consortium of banks. The process of financing can be described through this scheme: the intermediary company receives funds from a consortium of banks in the form of a loan, and then passes the funds received to the project company responsible for the implementation of the investment project. The amount of funds transferred acts as an advance payment for the future delivery of a certain number of products at a fixed price specified in the contract, which would be enough to repay the debt. Thus, at the stage of operation of the project, the loan is repaid from the cash flow generated by the project itself.

One of the typical ways of raising money for financial support of oil and gas investment projects is a bond loan. The global financial crisis has led to stricter regulations on banks and their lending requirements. This leads to the need to consider other, more innovative and in some cases more profitable ways of financing. These could include project-specific bonds. However, they are more typical of foreign oil and gas companies. At present, a big part of oil and gas companies tend to issue bonds to finance their general corporate needs, financially support strategic mergers and acquisitions, and refinance loans. That is, in fact, bond offerings are not focused on financing a specific transaction or a group of related transactions.

Let's move on to considering the financing of oil and gas investment projects within the framework of public-private partnerships. In the 1950s and 1960s, the vast majority of oil and gas investment projects in developing countries were financed at the expense of international oil companies through their subsidiaries. Since the 70s of the XX century the governments of the oil-exporting and oil-importing states in order to ensure economic security began to actively control the development of the oil and gas producing complex [121]. As a result, oil and gas

projects began to receive additional funding from state budgets and government loans. In the countries of Asia, Latin America and Africa the field development began, accompanied by the creation of special enterprises by national oil companies and transnational oil companies, having, in contrast to the first, a wide experience of exploration works and free financial resources.

Joint implementation of field development projects is accompanied by the necessary documentation, where the most important role was and is played by a formal agreement between the parties. One of the forms of such agreement is a production sharing agreement. It was first concluded in the early 50's of the last century by the transnational oil and gas producing syndicates on the one hand and the Bolivian government on the other.

Product sharing agreement is associated with one of the types of project financing and is a special agreement, under the terms of which a joint venture is established. As a rule, a product sharing agreement is drawn up for the division of natural resources. This contract is concluded between a foreign mining company, called the contractor, and a state enterprise, called the state party, empowering the contractor to conduct exploration and exploitation within the territory defined by the contract in accordance with the terms of the agreement [78]. The agreement on section of production determines the size of the share, passing to each party, from the total volume of oil and gas extracted as a result of industrial operation of a field. The advantage of such contract is localization of risks in the project company - joint venture, and also minimization of risks of the participating countries in the international oil and gas projects.

It is worth emphasizing that in the production sharing agreement the state party is a specially established national oil company (hereinafter - NOC) controlled by the state [72]. Such a company performs both functions of the state bodies and some economic functions in favour of the state.

As a rule, the NOC performs the following functions:

a) Providing direct government management and regulation in the oil and gas sector of the economy;

b) Ensuring the implementation of economic development programs of their country;

c) Realization of the "concentration effect", which makes it possible to increase the number of large enterprises concentrated next to each other and thus reduce production costs;

d) Formation of a strategically grounded stock of oil and petroleum products, one of the purposes of which is to provide oil supply to budget consumers;

e) Financing of creation of new technologies required for field development.

f) Participation in projects with the signing of production sharing agreements to manage the subsoil owned by the state on the right of ownership, organization of the process and financing.

Returning to the production sharing agreement, it is worth noting that its main difference from the classical concession agreement is the following: the usual concession agreement assumes that the party, under such agreement vested by the state with exclusive rights, will receive all the minerals extracted on the territory provided on a long-term basis. In this case, the absolute majority or all taxes, fees, duties, tariffs and other mandatory payments established by the legislation of the state party must be accounted for and paid by the party-user. The production sharing agreement, in turn, defines other conditions. The party-contractor is vested by the state party with the rights to use a strictly defined subsoil area and receives, in accordance with the contract, part of the minerals extracted in this area. Another part of these raw materials is allocated to the state without compensation, but in return the contracting party is exempted from most of the tax burden during the term of the production sharing agreement.

The Russian experience of production sharing agreements can be cited as an example of Sakhalin-2. Sakhalin Energy was established to implement the project, the shareholders of which are PJSC Gazprom (Russia), Shell (the Netherlands), Mitsui, and Mitsubishi (Japan). The project is developing the Piltun-Astokhskoye and Lunskoye fields located in the Sea of Okhotsk on the Sakhalin Island shelf [7].

Public-private partnerships are needed to plan and implement steps to introduce "sustainable development" principles into the oil and gas industry, in particular, to implement environmentally oriented projects aimed at reducing negative damage to nature and biodiversity. The World Bank even highlights the separate term "climate-smart public-private partnerships" for projects that aimed to climate-optimize the infrastructure in the way of decarbonization, mitigation of climate change by increasing control to the technologies in order to decrease harm to the environment. Governments in countries where oil and gas production play a major role in their economies understand that cooperation with oil and gas companies on environmental, social and governmental matters is necessary to maintain economic stability and the well-being of their populations.

Thus, oil and gas companies prefer to use all available financial instruments to finance their investment projects. The largest oil and gas companies prefer to use their own resources to finance relatively low-budget and short-termed projects, and for capital-intensive projects to attract funds through various combinations of financing sources. One of the peculiarities characteristics of the oil and gas industry is the possibility to finance investment projects by means of production sharing agreements. Production sharing agreements are a special mechanism for attracting both domestic and foreign long-term investments. The undoubted advantage of such an agreement is localization of risks in a joint venture as well as minimization of risks of participating countries in international oil and gas projects. The international

community, oil and gas companies and governments of all developed countries are paying more and more attention to investment projects corresponding to the principles of "sustainable development". Features of world experience and trends of impact investing we will consider in the following paragraph.

2.3 Trends and barriers of impact investing in the oil and gas sector

As mentioned earlier, in the last decade there is a growing interest of various international market actors in the green economy, which leads to divestment from "dirty" industries. At the risk of losing customers and investors, even the oldest companies of the oil and gas industry, evolving, begin to revise their own strategies. But despite the fact that the share of companies in the industry in investment in "green" technology is not yet so relatively significant, we can see that investments in this field are constantly increasing. According to BNEF [47], there are a new record in 2022: global investment in the transition process to low-carbon technologies reached $1 trillion for the first time ever, indicating an elevated interest by companies in reducing carbon emissions. The world's industry leaders are making statements about the transformation into energy companies, increasing strength in the implementation of climate projects.

World society and investors, in particular, are quite sensitive to anything that may directly or indirectly affect the activities of the company in which they have invested their money. The beginning of the twentieth decade of the twenty-first century did not show itself in a positive light. Business conditions have deteriorated considerably compared to a decade earlier. The year 2020 has hit the world not only with pandemics and a general lockdown, the number of environmental disasters has also increased. The most striking example is the oil spill in May 2020 at the thermal power plant in Norilsk, which resulted in about 20 thousand tons of diesel fuel getting into water bodies, including the Daldykan River [76]. Rostechnadzor does not rule out that this catastrophe may have been caused by worn-out equipment that had served for 30 years. The accident caused Nornickel's shares to plummet by 5%, and apart from the fine and the millions of dollars spent on remediation, the accident had a negative impact on the company's ESG rating. Plant accidents significantly undermine the image of industrial companies, which leads to a significant deterioration of investment attractiveness and cash outflow for investors.

Despite the recovery of the economy after lockdown, new barriers emerged - the special military operation that began in 2022, the energy crisis that followed, the growing inflation. But national governments still have a policy based on ESG. True, according to the S&P forecast, the emphasis is shifting to the social part of the concept [60].

Today, in addition to the agenda related to social responsibility, the decarbonization of the global economy still is a pressing issue. Decarbonization - the reduction of emissions in the production of products - has become a logical reason to force industrial companies to modernize their own plants. The main catalyst for minimizing carbon emissions was the Paris Agreement, signed in 2015. Under this agreement, the community of countries and the companies that supported it set a goal: to keep the rate of increase in the average temperature on the planet below 2°C by 2050. In the summer of 2020, participants of the Oil and Gas Climate Initiative (OGCI) announced plans to reduce the so-called carbon footprint of their products [91]. To achieve this goal, many oil and gas companies have launched quite ambitious programs to reduce greenhouse gas emissions, in particular, focused on minimizing carbon dioxide (CO2) emissions into the atmosphere as much as possible. This organization includes twelve oil and gas companies, including industry giants Saudi Aramco, Chevron, BP, Total and ExxonMobil. These same companies resort to calculating domestic carbon prices.

Another step of oil and gas companies into a sustainable future is a voluntary carbon credit - a financial instrument that allows the holder-company to emit one ton of carbon dioxide in the process of activity. The purchase of such credits helps to reduce long-term risks in case of inability to quickly change the technology. The most developed market for trading carbon credits is now in Europe. Back in 2005 the European Emissions Trading System (EU ETS) was launched, in which 11 thousand companies from 31 countries participate [20]. At its very first stage, it covered only industrial installations of the energy sector and energy-intensive industries. Later on, new sectors were added. States that have reduced emissions as part of the decarbonization programs, as well as companies with "surplus" emissions permits received the so-called "carbon credits" with the right to resell them. Now about 60% of allowances ("carbon credits") are sold through brokers, and the rest - on stock exchanges, including "European Climate Exchange" in Amsterdam, the Netherlands and "Powernext" in Paris, France [19].

Also, we need to note that in the long term, for oil and gas companies, delaying actions aimed at decarbonizing production facilities may also lead to a collapse in export revenues. This applies in particular to companies that want to continue exporting to Europe. Lack of optimal systemic measures for accounting and reduction of carbon footprint will soon be considered as "environmental dumping" from the point of view of foreign regulators. In this case, exporters will be forced to pay duties for the import of products into foreign developed markets on the terms of local regulators, that is, at those rates and in those volumes that will be established. In May 2023 it was already announced the beginning of the transition phase in October 2023 of the program CBAM - Carbon Border Adjustment Mechanism [18]. Control over the carbon footprint of imported products into the European Union will become stricter.

Looking at the big picture, the operating cost structure of oil and gas companies is very capital- and labour-intensive. A long-term peak in oil field production capacity, which will inevitably be followed by a decline, may be reached when the world actively seeks alternative solutions for fossil fuels. The oversupply, simultaneous demand slowdown expected and predicted by many experts over the next twenty years has made investors very nervous, leading to an increase in the cost of capital attracted to the industry.

The International Energy Agency conducted a study based on 2022 results [57]. One of the main conclusions that was made: investment in renewable energy has outpaced investment in fossil fuels. More details and dynamics through the last few years are presented in Figure 15.

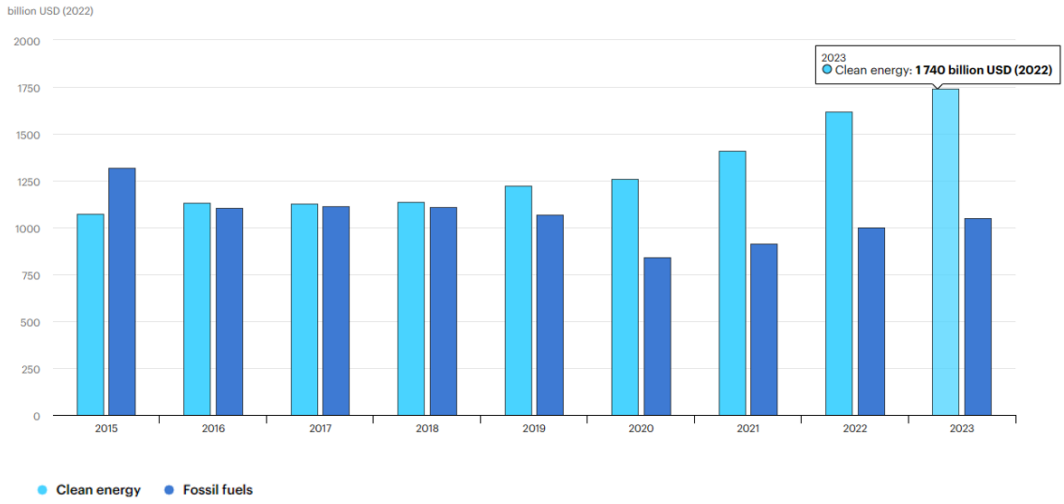

Figure 15. Global energy investment in clean energy and in fossil fuels [57]

Day-to-day operations are constantly faced with the challenges of disparate and ever-changing supply and demand for raw materials and end products. This is best illustrated by the graph in Figure 16.

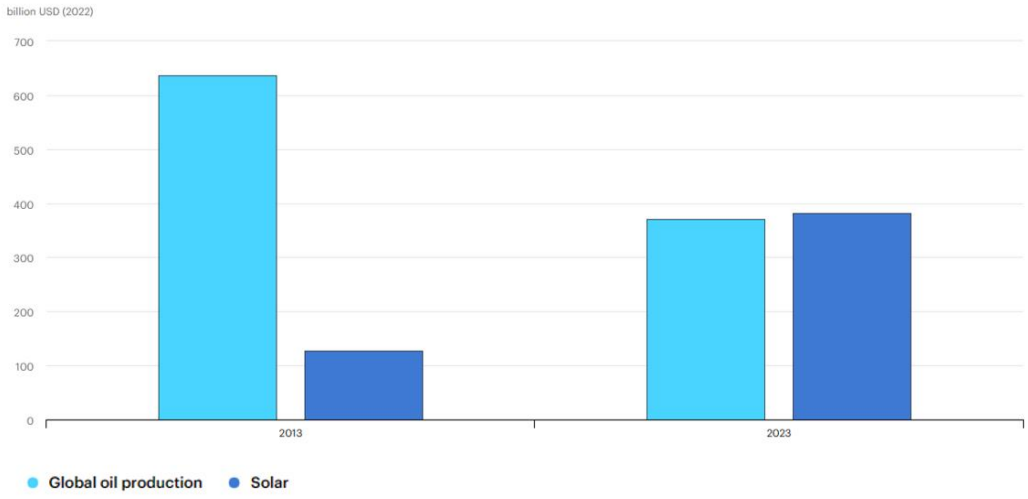

Figure 16. Oil production investment and solar investment, 2013 vs 2023 [57]

In order to protect themselves from "disappearing" from the market, many oil and gas giants are investing in the acquisition of companies whose activities are based on clean energy sources.

The experts said, in 2013, the ratio of investment in oil production to investment in solar energy was about 7 to 1. In 2023, the picture has changed, and now the ratio is about 1 to 1.

According to the same study by the International Energy Agency, investment by oil and gas companies in clean energy sources will continue to grow to more than $1.5 trillion worldwide. The forecast and dynamics are shown in Figure 17.

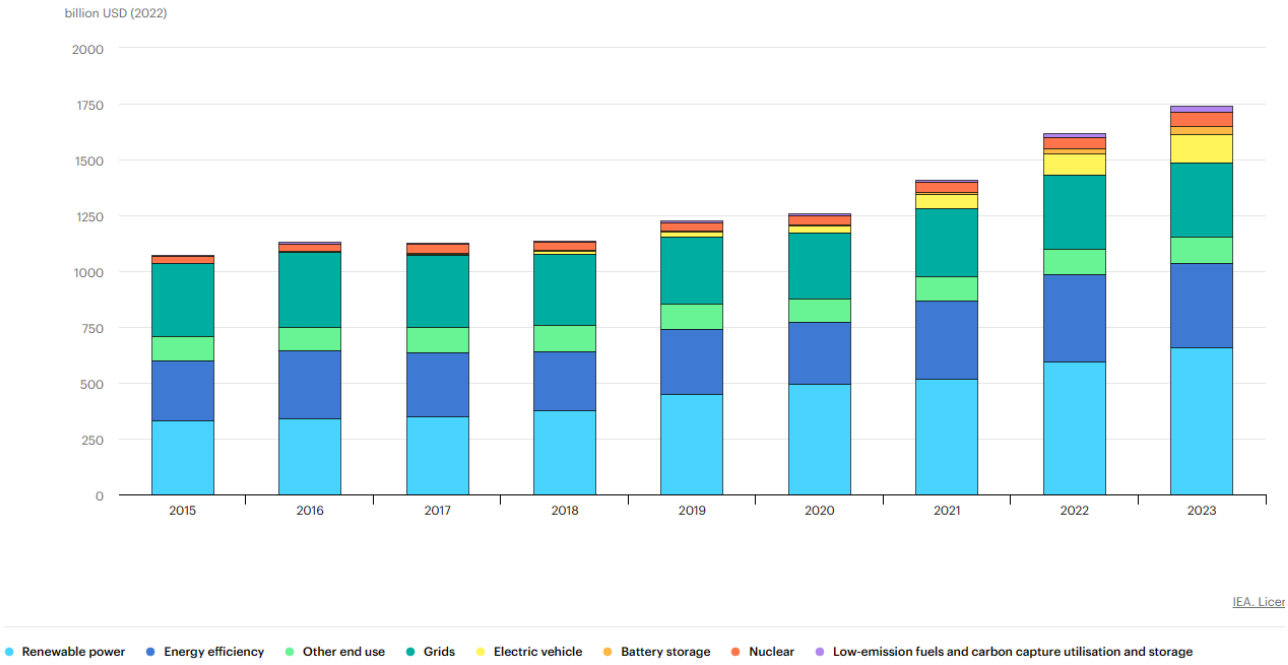

Figure 17. Annual clean energy investment, 2015-2023 [57]

However, it is worth noting, the overall picture is not entirely positive. For example, in 2022, against the backdrop of the energy crisis and rising gas prices, there was an easing of the environment and permission to increase production in the coal industry. This situation was seen above all in Europe. In China and India, the coal industry is also showing an upward trend. According to a PWC study, India, the world's third largest supplier of electricity, generates the majority of its electricity from coal [25]. Thus, despite global environmental initiatives, "dirty" energy sources will still exist in the next decade for sure. But this does not mean that the share of renewable energy sources will not also increase.

Even despite the obvious similarity of the directions, each oil and gas market participant sets its own priorities. For example, such giants as BP and Total shift their attention to renewable energy sources to a greater extent. Such investment projects are financed, as a rule, using various sources, among which a significant place belongs to funds received as a result of selling

"unnecessary" parts of business from the point of view of ecology.

For example, in 2019, Europe's largest oil and gas company Royal Dutch Shell announced plans to halve net carbon dioxide emissions by 2050 compared to 2016 levels, and Shell estimates that the required investments to achieve this goal will be $180 billion. The company estimates its investments in "green" energy at 1-2 billion dollars per year, with a total annual investment of 25-30 billion dollars. "Shell is currently diversifying its production portfolio more toward natural gas, as well as developing projects in the field of electric power. The company also reports on investments in the development of new energy sources and the development of experimental technologies [109].

The French company Total, one of the largest oil companies in the world, links its transition to a "green" future to the development of liquefied natural gas and renewable energy sources. Total intends to spend from $1.5 billion to $2 billion a year on environmentally friendly production. So far, the company's goal is focused on the period until 2030. By this time, it intends to reduce the carbon footprint of production by 15% compared to 2015 [22; 69]. The General Director of "Total" Patrick Pouyanne at the Davos forum in February 2020 expressed his point of view: in his opinion, to reduce the carbon footprint it is necessary to invest in technology, which in the objective future will achieve "carbon neutrality".

British company BP even changed its status from an international oil company (IOC) to an integrated energy company and now plans to increase its own capacity of renewable energy sources from 2.5 GW in 2019 to 50 GW in 2030 by increasing "green" investments tenfold while reducing investments in exploration in new regions for it. The company also announced a 40% reduction in production by the target date [17].

The company predicted a 75% decline in demand for fossil fuels over the next 30 years if global temperature increase is within 1.5 degrees Celsius or 50% if warming is less than 2 degrees. BP's plan to move away from oil after a century of exploration includes major investments in areas such as bioenergy, hydrogen and carbon capture and storage. The company also aims to create 70,000 charging points for electric cars, of which it currently has 7,500. At the same time, BP is going to reduce its refining portfolio and intends to raise $25 billion by selling assets over the next five years.

BP has already sold its petrochemical division and announced plans to cut 10,000 jobs. It cut its dividend by 50 percent to 5.25 U.S. cents and said it plans to maintain payments at that level in future quarters, promising to return 60 percent of the excess cash to investors through share buybacks. The board believes that setting the dividend at this level takes into account the current uncertainty about the economic impact of the COVID-19 pandemic, maintains BP's balance sheet, and provides the flexibility needed for the investments required for the energy

transition.

Greenpeace UK viewed the announcement as "a necessary and encouraging start," but believes that BP must continue to make even greater efforts to successfully transition from fossil to alternative energy sources.

If European companies have a trend to acquire assets related to alternative energy sources, the U.S. oil and gas major companies in the first place the development and improvement of technology CCS - carbon capture and storage. The essence of such technology is the collection of carbon and its subsequent utilization. Occidental Petroleum can be a good example of this. According to the official website and published sustainability policy this company has set CCS to reduce emissions to zero by 2050 [46].

Another trend in sustainable technology is the development of methane emission reductions. Thus, some oil and gas companies from different countries became participants of the GMP Pathway Energy program in a joint effort [69]. The initiative was launched in the fall of 2022, following the results of the first meeting, a newsletter was issued, informing about the goals of this program. It states that reducing methane emissions is one of the fastest ways to address climate change issues, together with addressing the safety and health of employees in companies with high concentrations of methane at work.

In the area of methane emission reduction, the World Bank's contribution in the form of the Global Gas Flaring Reduction Partnership project is also worth noting [23]. The most interesting information is related to the oil and gas sector, the main objectives are similar to the program already mentioned above, but the whole value chain will be covered by the World Bank project. The project will begin to implement the first steps in 2023.

All of the companies listed above report non-financially on their sustainability and ESG performance. According to the forecast by S&P Global for 2023, the main focus of management decisions will be on environmental initiatives [60]. This driver, in the form of a goal for a green economy, will strongly influence finances and investment. Green bonds will once again begin to be issued more frequently and in larger volumes. It also follows from the forecast that it is imperative for companies to ensure the transparency of their activities. One of the key tools is exactly non-financial reporting and the indicators reflected in it covering all components of ESG.

But it is also very interesting to consider the difference between the sustainability activities of international oil companies and the national oil companies that have already been mentioned in the previous section. The main difference is the flexibility in terms of compliance with ESG principles. The national oil companies are considered to be less flexible, because while planning their activities for the period ahead they also have to take into account the interests of the government in terms of economic growth, which of course leads to a conflict with the

implementation of environmental and social initiatives in some areas.

This feature of NOCs was mentioned at the World Economic Forum in September 2022, where representatives of the companies expressed the opinion that transparency of reporting would be one of the ways to increase flexibility [54]. But also, according to the opinion of experts, one of the barriers is manifested in the preparation of the reporting itself, since special for NOCs KPIs and their limits have not yet been formulated.

Uniform standards to which it would be worthwhile to focus have not yet been adopted, despite the attempts of the European Union to introduce a taxonomy, which we mentioned in the first chapter. This is why ESG efforts vary greatly from one NOCs to another, as one company may choose only a few key indicators to include in reporting, while another may introduce a whole list of indicators recommended by different existing standards.

The Sustainability Accounting Standards Board (SASB) are currently finalizing guidelines for non-financial reporting with oil and gas specifics, trying to address the characteristics and context of both international oil companies and national oil companies [95]. The main purpose of these recommendations is to try to standardize the analytics, monitoring and benchmarking for indicators that provide control over the steps toward decarbonization.

In this way, oil and gas companies are expanding their current commitments beyond their social investments and corporate philanthropy. Most companies understand that their responsibilities go beyond spill control, soil remediation and rebranding. Greening the economy and acting in accordance with ESG principles improves a company's investment appeal and allows it to improve its image in the global marketplace. Oil and gas companies have a unique opportunity to contribute to economic and social development for a sustainable and prosperous future. The world is witnessing a shift in the economic model - from short-term shareholder value, which prevailed before the crisis, largely caused by the coronavirus epidemic and economical shift after 24th, February, to long-term value. Companies have broadened their planning horizon and have increasingly begun to take into account scenarios for the environmental evolution of technology.

3 Impact investment of oil and gas companies in the Middle East on the example of Saudi Aramco

3.1 Regional context analysis of Middle Eastern oil and gas companies

When it comes to the importance of the oil and gas sector for individual countries and regions, one of the first associations is the Middle Eastern countries, for which oil fields are real goldmines for the economy. However, rich oil deposits are not only a blessing and a tool to improve the economy of the country, it is also a "resource curse". What exactly this will be for the countries of the Middle East depends on the decisions of oil and gas companies' management and the governments of these countries.

Usually, economists include the Middle East in a larger region - MENA - the Middle East and North Africa (Figure 18).

Figure 18. Countries of MENA region

This grouping is based on cultural and historical proximity and a common religion, Islam. Israel is also included in the region, despite having a majority population of a different religion. The recent history of the region is very complex because it combines both economic ups and downs. The region is often plagued by armed and local conflicts, but also possesses great reserves of resources.

Another characteristic of the region is the sanctions imposed. As of 2023, at least eight MENA countries are under sanctions by EU and the United States. The example of Iran is noteworthy. Sanctions on this country were imposed by the U.S. back in 1979 and have never been lifted. The reason for this is the constantly renewed confrontations. The bans mainly concern the oil and gas industry and the export of hydrocarbons abroad. The sanctions situation

is shown in more detail in Figure 19.

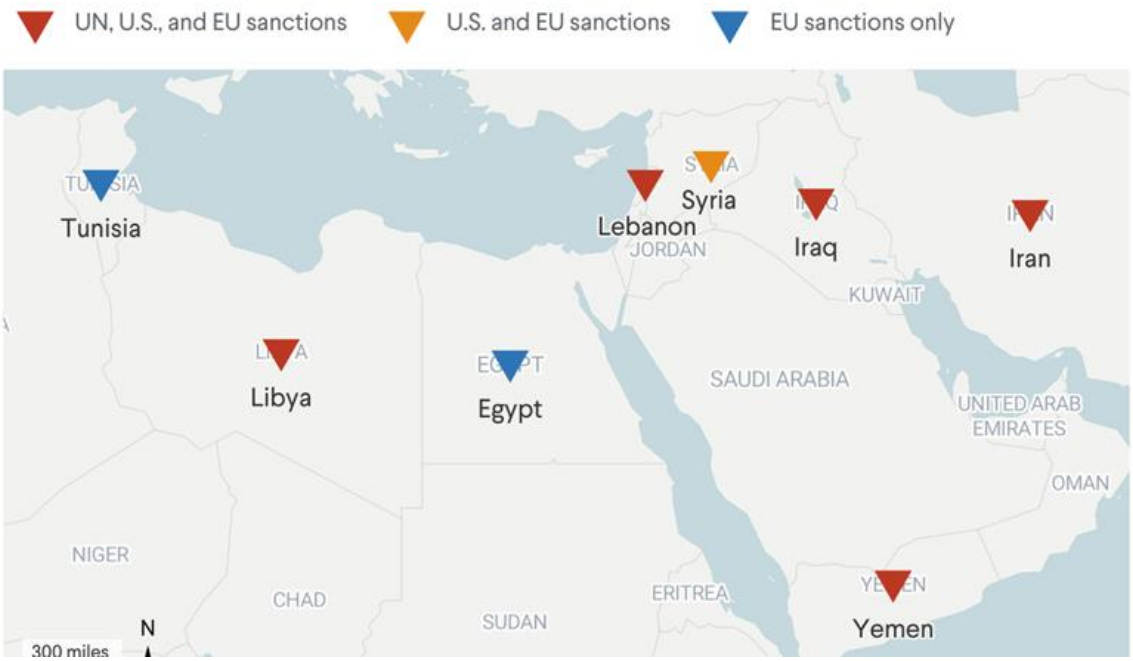

Figure 19. Sanctions against countries in the MENA [29]

You can see the share of oil and gas products in the exports of individual countries in Appendix A. The data is provided by World Integrated Trade Solution.

U.S. Energy Information Administration prepares an annual review of the energy market around the world. According to their information [27] MENA has more than 50% of the world's proven oil and gas reserves, and petroleum products produced and refined account for more than half of all exports. The main production is of course carried out by local national oil companies, among the leaders are the Saudi ARAMCO, the Abu Dhabi National Oil Company, QatarEnergy and others.

Heavy dependence on oil and gas also creates problems. During the crisis of 2014 and the fall in oil prices, the GDP of the Middle Eastern countries also changed dramatically. The most striking example is the negative GDP dynamics of Kuwait, where the decline was just over 30 percent compared to 2013 [29]. This case showed that Middle Eastern countries need to diversify export items and look for new ways to improve the economy.

Environmental and social problems are also acute in countries of the Middle East. One of the main obstacles is the inequality of well-being of the population. Although the Prosperity Index [117] shows that Middle Eastern countries such as the UAE, Kuwait and Saudi Arabia are in the top 80 out of 167 countries, the gap within the countries is quite high between the rich and the poor. Inequality is particularly acute in education. For example, according to the data used to compile the Human Development Index [2], the possibility for the population of Iran and Yemen to obtain basic schooling is quite low for the poor.

The level of corruption in MENA is high: according to the Corruption Perception Index [1], more than two-thirds of the Middle Eastern countries are below the 100th position in the ranking.

Based on all of the above, let us summarize that the richest and most prosperous are the monarchies located in the Persian Gulf in comparison to other countries in the region. They are also leaders in the diversification of economy and implementation of principles towards sustainability. Israel and Turkey are also among the leaders. It is worth noting that scholarly works sometimes include Turkey in the region of the Middle East. However, the situation is rather confusing, since the geographical location and economic situation show that Turkey is simultaneously close to Europe. We will consider Turkey as part of the Middle East.

All of the countries mentioned in the paragraph above have signed the Paris Agreement, and the very first country to ratify the treaty was the UAE (2016). In order to achieve the goals of the agreement, states set themselves a time frame for implementing the steps toward decarbonization presented in Figure 20.

Figure 20. Timeframe for achieving decarbonization [80]

As you can see in the figure, there are countries that did not set themselves any specific dates. Nor do these countries have formalized strategies for achieving decarbonization. Egypt currently has a comparable sustainable energy strategy document. According to the roadmap, the goal is to get at least 40 percent of all energy produced from renewables by 2035. Qatar is concentrating on greenhouse gases, and the government has created a strategy that by 2030 all companies in the country need to reduce their emissions by 25 percent together. As for Iran, according to the government [116], measures to combat climate change, which also focuses mainly on greenhouse gases, have been introduced in the national five-year plan.

The concept of ESG is also currently a hot topic in the Middle East. This manifests itself in the need to publish ESG reporting. For example, in 2021, the UAE legislated a mandatory ESG reporting for listed companies on the base of GRI standard [124]. Mandatory disclosure also applies in Egypt from 2023 for listed companies and companies engaged in the non-banking financial sector.

Information about ESG is collected and accumulated by international and local rating agencies that create special platforms. One of these platforms is ESG Invest [34], which presents

ratings and data on companies in the Middle East.

Next, we take a closer look at the three leading countries in the oil and gas industry in the Middle East: the UAE, Qatar and Saudi Arabia.

As we found out earlier, sustainability measures are conducted through sustainable projects, and projects are funded by different sources. One way of financing is through green, social and sustainable bonds. However, when it comes to countries in the Arab world, we have to keep in mind that instead of bonds, there are sukuk. According to Shariah, fixed-income bonds with interest coupons are essentially a type of usury. So, the main difference between a sukuk and a bond is that a sukuk is secured by a specific asset, not debt, and as the price of the asset increases, so does the price of the sukuk. And unlike stocks, the property that secures a sukuk is segregated. Dividends from shares are paid based on the profits of the entire company, income from sukuk is solely based on the property allocated to a particular issue of such securities. Moreover, sukuk are issued to finance activities that are halal.

In the Middle East, in 2017, there was the first green bond issue by First Abu Dhabi Bank. There is no exact figure describing the size of the market of stable financial instruments in the UAE. The assessment is carried out mainly by international consulting and analytical companies. If we talk about the overall assessment of the MENA region, according to Bloomberg, the ESG-financing market has almost quadrupled in 2021 compared to 2020. Thus, the market volume amounted to $18.64 billion [70].

An important moment for coordinating ESG actions and supporting sustainable projects was the establishment of the UAE National Committee on Sustainable Development Goals in 2017 [124]. And the Sustainable Finance Working Group was created to make recommendations and guidelines for financing sustainable projects in 2020. A private business council was also created, which included representatives of foreign companies. The main goal of the council is to help transform the economy and engage more ESG initiatives.

At the moment, the situation with ESG-funds is as follows: only iShares MSCI UAE ETF operates as a classic fund, but the Dubai Investment Fund intends to create a separate unit focusing specifically on investment in ESG. The new unit will also create a methodology for rating companies and their sustainability activity.

As for stock exchanges, there are three of them in the UAE: Abu Dhabi Stock Exchange, Dubai Financial Market and NASDAQ Dubai. Sustainable securities are traded on them as well. Moreover, the exchanges themselves regularly hold events, conferences and master classes in the field of ESG. Also in 2022, in Abu Dhabi was launched a carbon exchange, which trades emission allowances [124].

In general, if we look more broadly, in the UAE the steps to achieve sustainability began

much earlier than the above-mentioned dates. In Dubai, for example, since 2010, companies whose activities are highly rated in the field of working conditions and environmental impact have been given a distinctive label, the so-called CSR Label Not only national but also foreign companies operating in Dubai can win such an award. The record holder for receiving the CSR Label is Emirates Gas - the company has won 10 times [35].

Now let's look at Qatar. The first green bond issue in this country was in 2020. The total face value was $600 million [85]. The five-year green bonds are listed on the London Stock Exchange and are aimed at raising funds for sustainable construction projects, energy efficiency technologies, and water purification.

The Qatar Stock Exchange operates in Qatar and is one of the largest in the Middle East. And like other leaders, it has joined The Sustainable Stock Exchanges (SSE) initiative, coordinated by the UN According to the official website of the Qatar Stock Exchange, it produces an annual sustainability report based on GRI and SASB standards [87].

The exchange has also created and issued its own guidelines for companies that are listed on it. This guidance was published in 2016 and included recommendations for a voluntary nonfinancial report, and this guidance also says that 34 indicators are fixed for assessment in the ESG area. One more important step in the development of ESG in Qatar was made in 2021, the MSCI QSE 20 ESG Index was created, which allows investors to learn about the most successful ESG practices among Qatari companies.

The greatest interest in this study is focused on Saudi Arabia as the main supplier of oil and gas to the world market.

Saudi Arabia's total amount of sustainability financial instruments issued in 2022 was $5.4 billion, as reported by the Climate Bonds Initiative [51]. In Saudi Arabia, there is increased interest in green financial instruments and ESG-linked sukuk. The following examples may testify to this.

The city of Dammam is home to the headquarters of Arab Petroleum Investments Corporation, shortened to APICORP. This company was established back in 1975 at the initiative of several Middle Eastern countries, which are major exporters of oil and gas. The main task of the company is to accumulate and coordinate finances aimed at improving the energy industry. For the last twenty years, the company has been focusing its activities on impact investing - improving technology, the environment, and society. One relatively recent initiative was a $750 million U.S. green bond issue in 2021 [101].

APICORP representatives reported that the issue received $2.2 billion in applications, and the money received was used for 10 green energy projects in both the Middle East and Europe, more specifically in Spain [12].

The Saudi stock exchange Tadawul is the largest in the MENA region. Like the Qatar and UAE's stock exchanges, it is a member of The Sustainable Stock Exchanges Initiative, but there is no separate unit for sustainable bonds. In the fall of 2021, Tadawul developed guidelines and published guidance on ESG performance disclosure for listed companies [101]. It is worth noting that as of the end of 2022 there are no mandatory non-financial reporting requirements in Saudi Arabia. In the beginning of 2023, one of the first steps was taken to coordinate and standardize information for non-financial reporting in Saudi Arabia: a list of ESG indicators was published by the Gulf Exchanges Committee.

In Saudi Arabia, the issue of carbon markets is also relevant: the first offset auction was held in October 2022, considered to be one of the largest. There were traded 1.4 million tons of carbon credits [96]. Despite the fact that the purchase of carbon credits is inherently optional in terms of legislation, 15 large companies in Saudi Arabia participated in the auction. Although this is more likely due to the fact that Saudi Arabia has emission controls, and in order to prevent possible conflicts on this basis, companies decided to purchase the right to a certain number of emissions. One of the standards controlling emissions is the Atmospheric Air Standard, which has been in effect since 2012. It establishes a certain value for air quality and sets limits for companies. Of course, there are exceptions, such as pollution due to situations out of control, like natural disasters, cataclysms, and so on.

The main strategic document in the field of climate change and sustainability is the Saudi Vision 2030, published by the country's government back in 2016 [73]. The document is comprehensive and covers various areas of the economy, including one of its main goals is to reduce dependence on the oil and gas industry in order to ensure stable economic development through a diversification strategy. Thus, one of the ways to diversify is the development of alternative energy sources. Therefore, the development of solar and wind power stations acquires one of the main values. The goal is quite ambitious - 50% of all energy produced should be based on renewable energy sources by 2030.

Also, as part of our study, it is worth considering the so-called Financial Sector Development Program, according to which the National Center for Public Debt Management is obliged to develop a plan and implement measures to increase the investment attractiveness of Saudi Arabia through increased transparency and the local implementation of ESG principles. In particular, in order to increase transparency, the stages of the implementation of Saudi Vision 2030 can be viewed on a special website. It regularly updates information about the current status of achieving a particular goal.

Next, we will look at two programs that complement the Saudi Vision 2030 in the field of ecology and green economy. These programs were the subsequent step towards achieving the

sustainability of the country after the publication of the Vision.

The start of the Saudi Green Initiative was announced in 2021. The Government of Saudi Arabia has defined in the program the main goals of the country aimed at energy transition and decarbonization, as well as the greening of deserts located in the country. Also, according to the program, it is planned to reduce carbon emissions by 278 million tons, and introduce measures to clean up and conserve the country's water resources. According to the government's calculations, the approximate cost of implementing the set goals will amount to $186 billion. Investments will be attracted, among other things, with the help of ESG-sukuk and green bonds [99].

The second program is called the Green Middle East Initiative. Its tasks and goals are aimed at the entire region. The program regulates and coordinates actions against climate change in the Middle East by reducing greenhouse gas emissions.

The Mutajadeda program operates within the framework of Saudi Vision 2030. Its essence is to support the development of renewable energy sources by creating incentives and incentives for producers of solar and wind energy. For example, one of the support measures is financing through the Saudi Industrial Development Fund. The fund provides preferential loans to companies engaged in renewable energy in the amount of up to $ 310 million [73].

Above we have already touched on the topic that Saudi Arabia is a leader of green sukuk issues. We should also mention another financial resource that is characteristic of Muslim countries' economies. Saudi Arabia is also one of the pioneers in the application of Waqf (assets transferred free of charge from the state or an individual more often for religious purposes or charity). Waqf and ESG-sukuk are considered as one of the ways to improve the socio-cultural and socio-economic spheres of life of the country's population. Let's look at the statistics, according to the Saudi Vision 2030 website, by the beginning of 2021, the total amount of waqfs in the country amounted to about $ 63 billion, 49 billion of which were directed to sustainable projects.

Thus, we looked at the characteristics of the MENA region, the factors and conditions for implementing sustainability measures. The peculiarity of the region is the dependence on the oil and gas industry, which occupy a large part of the economies of the countries. The oil and gas companies in the Middle East are increasingly responding to new demands to change thinking and take more decisive action on climate issues. Companies are showing more transparency about how their operations affect the environment by enhancing their non-financial reporting. The leaders in the ESG agenda are companies (in particular regarding the energy sector, including the oil and gas industry) in the UAE, Qatar, and Saudi Arabia. Next, we will look at the experience of the Saudi ARAMCO company.

3.2 Activities of Saudi Aramco and the company's steps toward sustainability

Saudi Arabia is known for its oil and gas, and the Saudi ARAMCO is certainly behind this fame. The national oil company of Saudi Arabia is one of the leaders in terms of revenues among all oil and gas companies in the world. This can also be evidenced by the rating compiled by S&P Global [113]. You can see more about it in Appendix B.

The company was founded back in 1933. At the moment, its central office is located in the city of Dhahran. The company is vertically integrated and provides its enterprises in Saudi Arabia with its own energy capacities. The main products are oil (crude oil is produced in five types - heavy, medium, light, extra light, super light), gas (mainly liquefied natural gas, ethane), chemicals, fuels and lubricants. Such diversification provides the company with a more stable position and flexibility in the market [82].

The company's IPO was held in 2019, and in 2021 the company released its first Sustainability Report, thereby showing interest in attracting more investors. It is also worth noting that Aramco completed its gas infrastructure project in February 2022, after which the famous investment management companies BlackRock Real Assets and Hassan Investment Company collectively became owners of 49% of the shares of Aramco Gas Pipelines Company (AGPC). The deal totaled $15.5 billion.

In March 2023, the results of the 2022 fiscal year were published, according to which Saudi ARAMCO broke its records. On its official website, Saudi ARAMCO states that due to the increase in the population in the next 1/4 century, the demand for energy will also increase, respectively, this will require both the development of alternative energy sources and the support of traditional energy sources, including oil and gas. Therefore, the company believes that its position will be stable in the near future, but it is also increasing its other activities. The result of this strategy was an increase in net income by the end of 2022 to $ 161.1 billion, which is almost 47% more in relation to the results of 2021 as presented in Table 3.

Table 3. Financial highlights [58]

Indicator	**2022**	**2021**
Net income	$161.1 billion	$110.0 billion
Cash flow	$186.2 billion	$139.4 billion
Free cash flow	$148.5 billion	$107.5 billion
Gearing ratio	37.6	31.9

However, the reason for such results was also the increase in crude oil prices due to the

situation in Ukraine, which is also mentioned in the company's financial statements. Among the reasons for the record numbers, an increase in production, processing and sales is also mentioned. The fourth - quarter dividends to investors totaled $19.5 billion. In this connection, it is worth noting that Saudi Aramco dividends, as well as taxes paid by the company, are one of the main income items for the government of Saudi Arabia. Accordingly, the fate of the whole country also depends on the financial results of the company.

The company is also increasing its assets outside Saudi Arabia, for example, it announced participation in the development of the petrochemical complex in China, and there were two acquisitions of companies such as Valvoline Global Products and the wholesale business of PKN ORLEN, thereby allowing to expand research and development, as well as acquire new channels and influence in the markets of other countries, for example, as in the case of PKN ORLEN - in Poland.

In order to more fully analyze the conditions and environment of the company, we conducted PESTLE and SWOT analyses. Next, we will touch on external factors based on PESTLE and look what steps the company is doing to ensure the effective running of its business.

Political factors: Saudi ARAMCO is a national oil company, so its main shareholder is the government of Saudi Arabia, which makes the company less flexible in terms of decision-making. However, both positive and negative sides follow from this interdependence, since the government itself is interested in increasing financial results, which can result both in providing benefits and indulgences in some areas, and in increasing the risk of corruption, which will negatively affect criterion G in the ESG criteria system for external investors.

Sales results are highly dependent on OPEC+ solutions, since it is on them that the regulation of production volumes and prices per barrel of oil depends. For example, after the OPEC+ meeting on June 4, 2023, it was decided to further reduce production, which affected Saudi ARAMCO's pricing strategy. The company has increased the prices of its products in the United States.

The company's activities are also influenced by the political situations in other countries where Saudi ARAMCO has offices and research centers, as well as countries where products are exported and countries where the company's joint ventures are located. For example, the company's offices and research centers are located in the Middle East (mainly Saudi Arabia), Asia (China, Japan, South Korea, Singapore), Europe (Great Britain, the Netherlands) and America (USA). The geopolitical situation between Russia and Ukraine has also played a big role in reviewing the actions of oil and gas companies. This also affected Saudi ARAMCO, as countries that refused Russian oil began to look for other oil and gas exporters.

The main production facilities of the company are located on the territory of Saudi Arabia,

but even in home country, they are not absolutely safe from the point of view of the political situation. For example, in September 2019, drones attacked some of the oil enterprises of Saudi ARAMCO. Production capacities were affected, which forced Saudi ARAMCO to reduce production by 6 million barrels [100]. It is reported that rebels from Yemen, who consider themselves to be militarized Houthis, took responsibility for that incident.

There is no need to talk about the occurrence of such situations in the Middle East at the moment, the Middle East still remains quite a hot spot, even despite the relative calm of the Persian Gulf countries.

We will not dwell in detail on economic factors, since the situation is approximately the same for the oil and gas industry around the world, which we have already touched on in the second chapter. We can say that high inflation is currently one of the key economic factors. Oil price volatility, which we mentioned more than once in the previous chapter, can also be included here, as well as some factors that we have included in the Political can also be included in the Economic, such as OPEC+ pricing decisions that affect supply and demand in the market.

Social factors: Saudi ARAMCO is the largest employer in Saudi Arabia, which imposes a responsibility on the company to pay decent wages, provide safety and social support to its employees and the community. Saudi ARAMCO's social support strategy is based on the corporate values shown in Figure 21.

Figure 21. Corporate values of Saudi ARAMCO [90]

In general, the company's corporate strategy is based on and complements the Saudi Vision 2030, which we mentioned. A particularly acute issue is the availability of work for women and their representation in the team of the company. Society in Saudi Arabia is patriarchal, many decisions in a woman's life are made either by her father or her husband. This is not much like the European way of a woman's life. In order to have a good image to attract investors from Western countries, Saudi ARAMCO must balance between traditions and foundations in its country and Western values regarding equality.

As part of the Saudi Vision 2030, which talks about increasing the proportion of working women, Saudi ARAMCO supports programs that allow identifying highly qualified female candidates in the field of science and engineering. Examples of such programs are GROWTH 2.0 and "Women in Business", which allow female employees to expand their skills and capabilities. Saudi ARAMCO also supports the community in this direction. So, until 2019, women were forbidden to drive a car, after the lifting of this ban, the company founded two schools for driving in support of its social strategy and Saudi Vision 2030.

The official religion in Saudi Arabia is Sunni Islam. But throughout the Middle East, military conflicts are also formed on religious grounds. As mentioned in the Political Factors, drones were launched at Saudi ARAMCO facilities in 2019. This was not only for political purposes, but also on a religious basis. There is also a high probability of terrorism throughout the MENA.

Technological factors: Saudi ARAMCO is constantly developing its technologies at all stages of the value chain. The development of technologies focused on gas production and processing deserves special attention. Integrated Gas Advanced Program was introduced in all Saudi ARAMCO gas enterprises. Its main goal is to introduce innovative ideas and solutions into production to ensure efficient and safe natural gas production for both people and nature. For example, one of the technologies already developed is horizontal drilling, which allows you to increase productivity. The Master Gas system for the development of infrastructure and transmission of gas from the production site to the processing site has also become one of the landmark ones.

Data analysis and machine learning technologies are widely used. Unmanned Aerial Vehicles are also being introduced more and more. An example of a gas enterprise located in Usmani is noteworthy. According to Saudi ARAMCO, the unmanned aerial vehicle system allowed to increase the speed of response in dangerous situations and conduct inspections twice as fast. The results published by the company were also recognized by the World Economic Forum. The company is also developing technologies aimed at CCUS, reducing emissions and preserving biodiversity. We will talk about these technologies a little later as part of the

implementation of a sustainable strategy.

Legal factors: Saudi ARAMCO operates within the framework of international law and the legislation of Saudi Arabia, but at the same time operating in other countries also falls under the jurisdiction of the countries of presence. The company assures that it respects human rights, ensures inclusiveness and diversity. The company's activities and products receive the appropriate certification, which allows it to legally continue its activities. The company's financial statements are compiled in accordance with the principles of IFRS, and the products comply with international standards.

Environmental factors: Saudi ARAMCO is the largest producer of hydrocarbon emissions in the MENA region, and also one of the major GHG emissions producer worldwide (relatively to other oil and gas companies). We have a rating by country [98], so Saudi Arabia ranks 10th in the list of CO2 emissions. Figure 21 shows the dynamics over the past 30 years, on average, the amount of hydrocarbon emissions is increasing in all sectors of the economy.

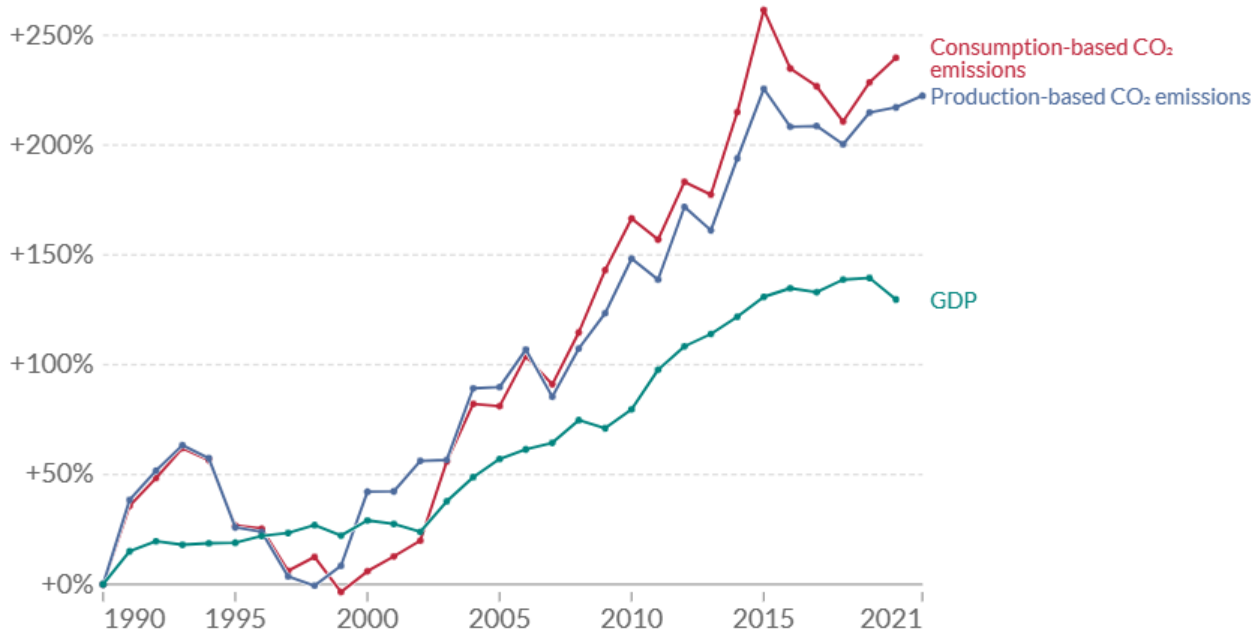

Figure 21. Saudi Arabia: change in CO2 emissions and GDP [98]

Along with the analysis of environmental factors, we will also consider the company's steps towards sustainability, focusing on the environmental goals of sustainable development. Saudi ARAMCO follows its strategy to reduce greenhouse gas emissions to zero by 2050 and methane by 2030.

In order to ensure coordination and control of the company's actions towards sustainability, a priority status for environmental management was officially established. The Board of Directors is at the head and supervises the sustainable development of Saudi ARAMCO in close cooperation with the Sustainability Steering Committee and The Risk and HSE

Committee, which includes representatives of senior management from different departments of business areas and administration. The main task of the Risk and HSE Committee is to monitor corporate risks, develop KPIs in the field of safety. Sustainability Steering Committee, in turn, focuses on achieving the Sustainable Development Goals. The Committee allows the company to build effective communication between different divisions and subsidiaries of Saudi ARAMCO, as well as maintain constant interaction with external stakeholders and prepare a Sustainability Report.

As an oil and gas and energy company of Saudi ARAMCO, it is very important to monitor its environmental impacts, because the company works in several directions. Let's analyze them further.

One of the key areas for ensuring emissions reduction is the development of units engaged in research and production of blue hydrogen. An ambitious goal has been set - the production of blue ammonia by 2030 should amount to over 10 million tons. It is believed that this will help reduce emissions in other sectors of the economy, so the energy obtained using blue ammonia as fuel will allow to reduce emissions to zero in the transport industry, transportation and heat supply.

In order to decarbonize, all the company's enterprises are implementing a reduction in the use of resources through the use of low-carbon energy sources. The company provides itself with energy on the territory of Saudi Arabia independently, often using renewable energy sources. For example, in 2017, a wind turbine was installed at one of the plants in Turaif. RES also provides electricity supply for the needs of administrative buildings and office complexes in Dhahran, where the company's headquarters is located. There are solar panels the size of 12 football fields installed there. Also, the IPower system is constantly being updated, which is currently operating only in Dhahran. It allows to constantly monitor the efficient operation of solar panels. The essence of the technology is to create a digital twin of a renewable energy source for data collection and analysis in order to predict a number of indicators, which include the reliability and durability of solar panels.

The company also uses Big Data technologies to track and reduce greenhouse gas emissions at different stages of production. For example, at the production stage, big data makes it possible to optimize the methods of extracting crude oil from the subsurface. To increase the productivity of oil wells in some fields, Saudi ARAMCO uses Internet of Things technologies with the help of specially designed sensors that allow monitoring the condition of the well, which in turn reduces energy consumption costs and inspection time.

Also, an important direction on the path to sustainability is the development of carbon

capture and removal technologies. These technologies are being developed not only for the company itself, but for other industries too. For example, one of the key developments is the combination of car exhaust gases and a special solvent, which allows you to obtain nitrogen, water vapor and separate hydrocarbon residues, which in turn helps to melt CO2 and place it in a special storage tank and then further removal or reuse.

Another area is the development of technologies for the conservation and purification of water. Water is used in the oil and gas industry in the development of deposits. But given the arid climate of Saudi Arabia and the desertification of the land, water conservation is in the first place here. The company's research centers are currently studying methods for water purification, and wastewater is reused in the development of deposits. An action plan aimed at protecting aquatic biodiversity near oil fields is also important. An example is Khurais, located south-east of the capital of Saudi Arabia and is one of the largest wetlands in the country, home to 22 species of plants, 52 species of birds, reptiles and mammals. Also in this area, the company is planting trees to prevent the movement of sand and desertification of the land. Saudi ARAMCO uses super-absorbent polymer technologies and hydrophobic sand in this area, which allow saving water necessary to maintain the water balance in the territory of Khurais.

The company strives not only to support environmental initiatives in the home region. Saudi ARAMCO supports international initiatives in order to combat climate change, being a member of the Initiative on Climate Change in the Oil and Gas Industry, the International Association for Environmental Protection of the Oil Industry and the Forum for Environmental Oil Research.

Let's summarize the company's actions in the oil and gas industry by identifying strengths and weaknesses, as well as possible opportunities and threats using SWOT analysis presented in the figure 22.

Strengths	**Weaknesses**
- strong technological base - large oil and gas reserves in Saudi Arabia - large financial resources	- great dependence on the government - depletion and non-renewable fossil resources
Opportunities	**Threats**
- the opportunity to become one of the world leaders in the transition to green technologies - opportunity to attract more foreign investors due to it Sustainability Strategy	- lagging behind major oil and gas players (European, American and Chinese) in the development of green technologies if the main efforts are focused on traditional types of products

Figure 22. Saudi ARAMCO: SWOT-analysis

Thus, we have reviewed the information about the company and its steps towards sustainability. The company now has great advantages that allow it to become one of the leaders of the transition to a sustainable economy in the future. Saudi ARAMCO's corporate strategy is linked to Saudi Vision 2030, which allows the company and the government of Saudi Arabia to combine their efforts on the path of decarbonization, climate control, environmental improvement and maintenance of social well-being. In the long term, the company's environmental activities and large investments in the environmental component of the business play an important role. The tightening of international legislation, the opinion of the world community in connection with climate change and its physical consequences may adversely affect the activities of Saudi ARAMCO as a major producer of fossil fuels, generating greenhouse gas emissions in the form of increased costs and reduced efficiency. In addition, Saudi ARAMCO operates in various regions where the potential for physical impact from climate change is quite unpredictable. In this regard, the company is actively working in various areas: protecting biodiversity in mining sites, supporting climate policy, modernizing plants to introduce more environmentally friendly technologies, energy conservation, energy management, and optimization of industrial processes.

3.3 Impact investing and non-financial reporting of Saudi Aramco: analysis and recommendations

At the time of writing this thesis, the Sustainable Report for 2022 has not been published. Its publication is expected in the end of June or in the beginning of July 2023. Therefore, in this paragraph we will consider report on the results of 2021, since no major changes have been established in terms of the mandatory inclusion of certain sections. Information on actions in the areas of sustainability is also contained in a special section in the company's annual report. We will also pay attention to it.

According to the Sustainability Report 2021, Saudi ARAMCO has allocated more than 360 million US dollars to social projects, thereby making an impact investment. The company is a participant in the Shareek program, according to which large companies in Saudi Arabia finance investment projects within the country. As part of this program, an agreement was signed with the Ministry of Energy on participation in a project focused on the construction of a facility for CCUS technology in the city of Jubail. It is planned that this construction facility will be one of the largest carbon capture and storage centers in the world.

Saudi ARAMCO conducts an active investment policy, accumulating financing from

various sources (retained earnings, subsidies, attracted funds from investors, etc.) and directing funds to various areas somehow related to a sustainable strategy, whether it is projects within the company to improve and develop technologies or the company's efforts aimed at the well-being of the community. To improve the coordination and control of such investments, in 2022 the company has established a Sustainable Development Fund. Initial investments amounted to $ 1.5 billion. The main interests of the fund are presented in Figure 23.

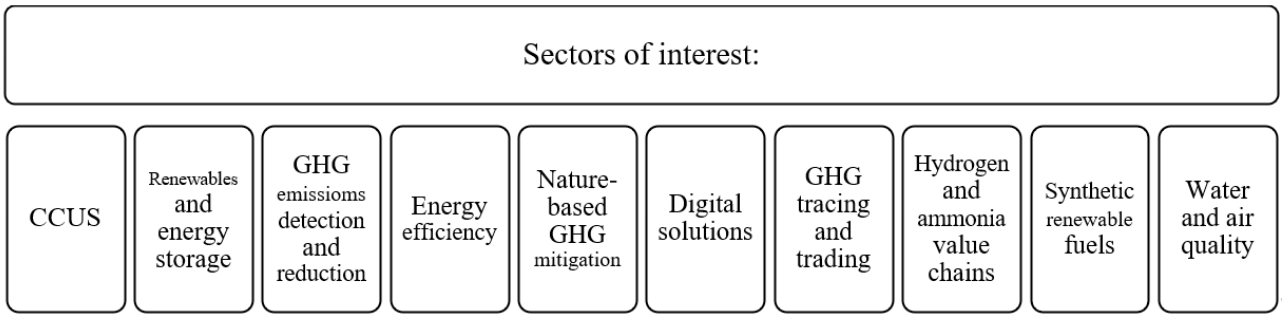

Figure 23. Sectors of investing interest [108]

The Fund is primarily intended to support other fast-growing companies whose technologies can be useful in the future and implemented in the activities of Saudi ARAMCO. The fund is managed by Aramco Ventures, a subsidiary of the company. A separate fund was also established called Saudi Aramco Energy Ventures in the amount of 500 million dollars, focused on projects developing technologies in the field of renewable energy sources.

According to the company's annual reports published on the official website, in each fiscal year, on average, about half of all research and development (R&D) costs go to the development of technologies related to sustainability as presented on Figure 24.

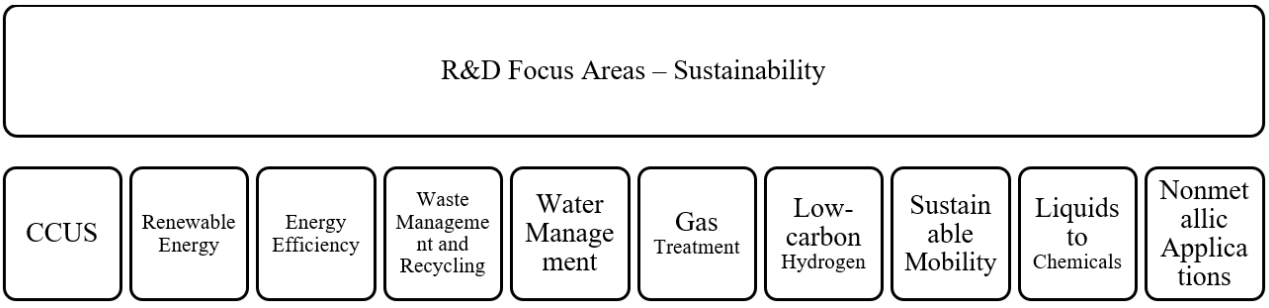

Figure 24. R&D Focus Areas – Sustainability [81]

The company is trying to increase research and development costs. We also calculated the Return on research capital using the formula 1:

$$RORC = \frac{\text{Gross Profit}_{year}}{\text{R\&D costs}_{year-1}} \quad (1)$$

This indicator makes it possible to understand what impact the R&D costs of the previous year had on the gross profit of the current one. The indicator is used to make decisions about

further increasing investments aimed at research and development.

The dynamics of R&D costs and RORC are shown in Figure 22.

Year	R&D costs	Gross profit	RORC
2017	$ 507	-	
2018	$ 591	$ 355 940	702,051
2019	$ 573	$ 329 809	558,052
2020	$ 755	$ 229 891	401,206
2021	$ 1 033	$ 400 468	530,421
2022	$ 1 178	$ 604 366	585,059

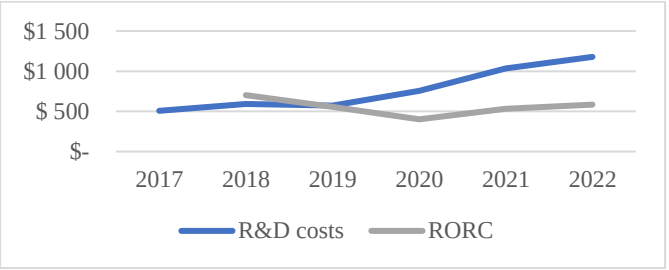

Figure 25. Dynamics of R&D costs

As we can see from the calculations and dynamics, even despite the decline in gross profit by the end of 2020 (the reason for which was the reduction in oil production due to the pandemic), the company continued to increase investments in development and research, including in sustainable areas. Saudi ARAMCO will continue to increase its investments in green technologies in the foreseeable future.

One of the reasons for increasing investments in technology for sustainability is the implementation and maintenance of Saudi ARAMCO megaprojects, shown in Figure 26.

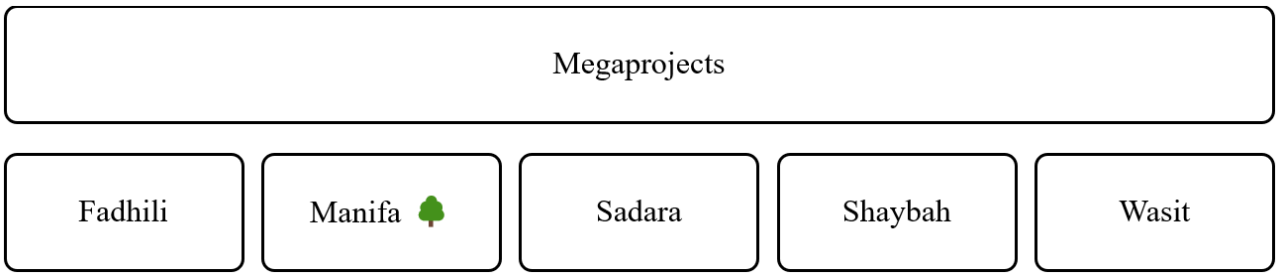

Figure 26. Saudi ARAMCO's megaprojects [82]

Manifa's megaproject deserves special attention, since the company itself calls it a "jewel". Manifa is a huge oil field, but it is also home to many species of plants, birds, and fish. The bay is also a "breadwinner" for the local population, since it allows local residents to earn money by fishing. Moreover, the main oil deposits lay directly in shallow water, and drilling could cause an environmental catastrophe. However, Saudi ARAMCO invested 10 billion and managed to develop a new method of oil production and preserve the ecological integrity of the gulf, for which the company was even nominated by UNESCO for environmental responsibility.

The company writes on its official website that in order to attract more investors, it intends to conduct transparent reporting. In this regard, we decided to study the company's non-financial statements.

According to the PWC's study, oil and gas companies most often use the following non-financial reporting standards: GRI, TCFD, SASB, IPIECA, WEF, UNGC [36]. Saudi ARAMCO

used in 2021 IPIECA, GRI, OSHA, WBCSD and WRIGGP. Tadawul and GCC Exchange Committee offers to use GRI, IIRC, SASB, CDP, UNGC, SDGs.

Based on the documents on the official websites of the organizations composing the frameworks [8; 106; 110; 115; 122] and articles by scientific experts [9; 14; 53], we have compiled a table (Appendix C) comparing the five frameworks presented in the figure below, with the exception of the Sustainable Development Goals, since they are included in the absolute majority of non-financial reports of companies.

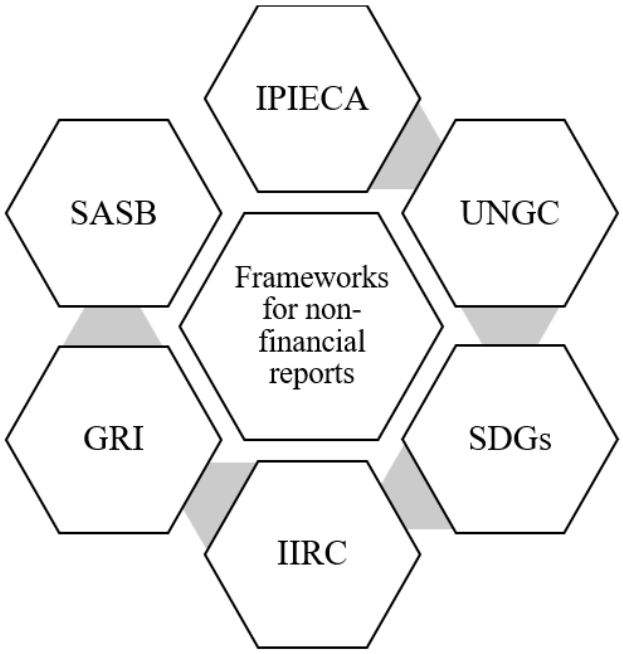

Figure 27. Frameworks for non-financial reports

None of the frameworks under consideration is comprehensive and unified for all companies. This is primarily justified by a large number of sectors of the economy. Each of the frameworks under consideration focuses on something specific, so using only one framework when compiling non-financial reporting is not possible. Saudi ARAMCO's approach in choosing frameworks for its reporting is understandable and has the right to exist.

However, it is worth considering that in January 2023, as mentioned earlier, GCC Exchange Committee released its own recommendations to standardize reporting in the countries of the Persian Gulf. We believe that it was a step towards the introduction of mandatory reporting in sustainability and ESG, so we can assume that soon compliance with these recommendations will eventually become imperative.

Assuming this, we analyzed the compliance of the Saudi ARAMCO’s reports, according to the recommendations made checklist that is presented in the Appendix D, and identified the metrics that were not affected either in the Sustainability Report, or in the Annual report. They are separately displayed in Table 3 below.

Table 4. Metrics that are not presented in Sustainability Report 2021, Annual Report 2021, Annual Report 2022

Metric	Calculation
E3. Energy Usage	E3.1) Total amount of energy *directly* consumed E3.2) Total amount of energy *indirectly* consumed
S1. CEO Pay Ratio	S1.1) Ratio: CEO total compensation to median Full Time Equivalent (FTE) total compensation S1.2) Does your company report this metric in regulatory filings? Yes/No
S2. Gender Pay Ratio	Ratio: Median male compensation to median female compensation
S3. Employee Turnover	S3.1) Percentage: Year-over-year change for full-time employees S3.2) Percentage: Year-over-year change for part-time employees S3.3) Percentage: Year - over-year change for contractors/consultants
S5. Temporary Worker Ratio	S5.1) Percentage: Total enterprise headcount held by part-time employees S5.2) Percentage: Total enterprise headcount held by contractors and/or consultants
G3. Incentivized Pay	Are executives formally incentivized to perform on sustainability?
G4. Supplier Code of Conduct	G4.1) Are your vendors or suppliers required to follow a Code of Conduct? G4.2) If yes, what percentage of your suppliers have formally certified their compliance with the code?
G9. External Assurance	Are your sustainability disclosures assured or verified by a third -party audit firm? Yes/No

Let's look at these metrics in more detail. In the segment “Environmental” we identified metric E3. There is no information regarding energy usage in the Sustainability Report 2021, however there is data about energy intensity (E4). The company partially discloses the information, mentioning the consumption of energy generated by renewable energy sources in Saudi Arabia. This metric also involves the disclosure of slightly different information that is present in the reporting in Arabic, but is not present in the global version, so we recommend that this metric also be included in the report in English in the future. According to the Committee's document, metric E3 should be included information about energy that has been spent on production, and the energy that was used indirectly - for example, for utilities. In general, it can be concluded that the reporting for 2021 corresponds to the standardized list in the segment “Environmental”.

However, in the "Social" segment, we could not find information about four metrics from the recommendations in the Sustainability Report. Metric S1 is disclosed in the Annual Report, and also includes information on compensation to all members of the Board of Directors. We also suggest including this information to the Sustainability Report in the future. Metrics S2, S3, S5 are not included in any report and not mentioned anywhere on the official website. Metrics aimed at calculating staff turnover can be difficult to calculate due to the scale of the company. However, based on the developed requirements, it is proposed to include these indicators in

future reports. S2 is of greater interest in the "Social" segment, because, as we discussed in the last paragraph, the situation with working women in Muslim countries is quite complicated. The Gender Pay Ratio metric would help the company to monitor the situation with a fair distribution of costs and would make efforts in this area more transparent for foreign investors.

In the segment “Governmental” there are three metrics that are not fully mentioned in reports. Saudi ARAMCO implies that actions in the field of sustainability affect bonuses to management positions, however, according to the annual report, it is the financial results for the past year that are the decisive factor. Actions towards sustainability are mentioned in passing and no KPIs are mentioned, which are used in calculating compensation to the Board of Directors. It is recommended to include this information in the Sustainability Report in the future. We noticed that a similar situation is happening with the G4 metric. The annual report mentions that Saudi ARAMCO monitors the integrity of suppliers and monitors those suppliers do not use children and illegal labor. However, the certification of suppliers was not mentioned. The company should also include this information in its future report.

We have come to the consideration of the G9 metric. Verification of non-financial statements in Saudi Arabia is not mandatory, but obviously increases the reliability of the information provided. According to the Sustainability Report 2021, two audit companies EY and KPMG confirmed the reliability only of six key non-financial metrics of the company which ones are mentioned in Appendix D. However, other metrics were left without due attention. Moreover, the full verification of the Sustainability Report and reports disclosing ESG metrics according to the methods of audit companies should also include some audit opinion. So far, the methods of verification of non-financial reports are at the stage of development and refinement, so we consider the information on the G9 metric to be partially disclosed.

Thus, we reviewed the activities of companies in the field of impact investing, identified the main directions, and also analyzed non-financial reporting. On the basis of non-financial reports external investors receive the information necessary to participate in impact investing and in the company's initiatives. We have also considered the features of the formation of non-financial reporting, comparing various frameworks. The content of non-financial reporting is not strictly regulated in Saudi Arabia, but based on the recommendations of the GCC Exchange Committee, we identified the missing metrics. Our recommendation is to add relevant information.

CONCLUSION

As a result of the study, the goal was achieved. We have analyzed the specifics of the impact investing of an oil and gas company. We have also completed all the tasks that was set to achieve the goal.

Investing in the sustainable and fair development of society and the environment is both a sign of decency in the eyes of stakeholders and a fairly profitable business practice. When it comes to a company's sustainable development strategy, we assume that the organization understands the most rational approach to how to best use its assets, capacities, business processes, products and services, innovations to achieve a sustainable future. When considering a company's sustainability strategy in accordance with investment strategy in this context, it is also necessary to understand what ESG, SRI and impact investment are. There is currently no clear and unambiguous approach to the interpretation of these concepts. The non-standardization in terminology created confusion about how ESG investments and sustainability investments are distinguished, but we considered socially responsible (SRI) and environmental, social and governance (ESG) investing as approaches to impact investing.

The variety of investments is great: they can be classified according to various criteria. The main form of strategic development of the organization is real investment. The process of implementing the company's development strategies and the complex of works performed to justify the effectiveness of the invested investments is called an investment project.

Investment projects, in turn, being the justification for the implementation of capital investments, allow for the implementation of measures necessary for the development of the organization in the selected areas. A detailed consideration of the stages of its life cycle plays a leading role in the successful implementation of an investment project.

We have considered the frameworks of the market for sustainable and impact investments. At the moment, standards are being developed and adopted, and market participants should listen to and follow. However, a variety of methodologies can be disorienting for companies, so many companies prefer to focus on the most elaborate, popular rating methodologies and on the recommendations of supragovernmental organizations. The European Union is undoubtedly the leader in the development of principles and rules in the market for impact investments. Most countries, investors, issuers and underwriters are guided by European standards when making decisions about sustainability investments.

Investment activity is a complex process that requires consideration of various factors influencing decision-making. In particular, it is important to take into account a number of specific features of the specific industry to which the organization belongs.

So, in the oil and gas industry, it is necessary to take into account that the reserves of oil and gas indicated in barrels of oil equivalent as part of the balance sheet of an oil and gas company are exhausted. Companies in the oil and gas sector need to develop and expand new fields, both on the territory of their country and on the territories of foreign states through, for example, production sharing agreements, which in turn are a special mechanism for attracting both domestic and foreign long-term investments.

The main risks of investment activity in the oil and gas sector are uncertainty and insufficient analytical data. Not all factors affecting the company's activities can be foreseen and calculated. Thus, it is almost impossible to predict how much oil prices may fall (market risk), how and when the exchange rate of the national currency will change against the US dollar (currency risk), whether new sanctions will be imposed by other states (foreign economic risk).

Oil and gas companies are expanding their current commitments beyond their social investments and corporate philanthropy. Most companies understand that their responsibilities go beyond spill control, soil remediation and rebranding. Greening the economy and acting in accordance with ESG principles improves a company's investment appeal and allows it to improve its image in the global marketplace. Oil and gas companies have a unique opportunity to contribute to economic and social development for a sustainable and prosperous future. The world is witnessing a shift in the economic model - from short-term shareholder value, which prevailed before the crisis to long-term value. Companies have broadened their planning horizon and have increasingly begun to take into account scenarios of ecological technology evolution.

We looked at the characteristics of the MENA region, the factors and conditions for implementing sustainability measures. The peculiarity of the region is the dependence on the oil and gas industry, which occupy a large part of the economies of the countries. The oil and gas companies in the Middle East are increasingly responding to new demands to change thinking and take more decisive action on climate issues. Companies are showing more transparency about how their operations affect the environment by enhancing their non-financial reporting. The leaders in the ESG agenda are companies (in particular regarding the energy sector, including the oil and gas industry) in the UAE, Qatar, and Saudi Arabia. Next, we will look at the experience of the Saudi ARAMCO company.

We have reviewed the information about the company and its steps towards sustainability. The company now has great advantages that allow it to become one of the leaders of the transition to a sustainable economy in the future. Saudi ARAMCO's corporate strategy is linked to Saudi Vision 2030, which allows the company and the government of Saudi Arabia to combine their efforts on the path of decarbonization, climate control, environmental improvement and maintenance of social well-being. In the long term, the company's environmental activities and

large investments in the environmental component of the business play an important role. The tightening of international legislation, the opinion of the world community in connection with climate change and its physical consequences may adversely affect the activities of Saudi ARAMCO as a major producer of fossil fuels, generating greenhouse gas emissions in the form of increased costs and reduced efficiency. In addition, Saudi ARAMCO operates in various regions where the potential for physical impact from climate change is quite unpredictable. In this regard, the company is actively working in various areas: protecting biodiversity in mining sites, supporting climate policy, modernizing plants to introduce more environmentally friendly technologies, energy conservation, energy management, and optimization of industrial processes.

In the modern world, transnational oil and gas companies are facing an urgent issue concerning the search for ways to prevent long-term risks that lie behind the refusal to reconsider the need to introduce clean technologies into production. The same applies to the future, in particular, Saudi ARAMCO.

One of the most effective ways, of course, is the openness of oil and gas companies, and openness is achieved primarily through the preparation of non-financial statements. We reviewed the activities of companies in the field of impact investing, identified the main directions, and also analyzed non-financial reporting. On the basis of non-financial reports external investors receive the information necessary to participate in impact investing and in the company's initiatives. We have also considered the features of the formation of non-financial reporting, comparing various frameworks. The content of non-financial reporting is not strictly regulated in Saudi Arabia, but based on the recommendations of the GCC Exchange Committee, we identified the missing metrics. Our recommendation is to add relevant information. Public non-financial reporting includes information about the company's activities in terms of sustainable development, social impact, reflects interaction with communities and stakeholders, and shows to the general public the results achieved by the company, including economic, environmental and social aspects. Access to non-financial information for all stakeholders enables them to more adequately assess risks and make a qualitatively different judgment about the long-term financial sustainability of a business. Non-financial reporting can be used by companies to better attract financial resources, and by all stakeholders to make more informed decisions about such companies.

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APPENDIX A

Middle East countries' export analysis

Table A.1. Export structure of some countries in the Middle East, US$ Thousands [86]

Qatar	1. **Petroleum oils and oils obtained from bituminou**, worth US$ 7,253,522.00 million. 2. **Tugs and pusher craft**, worth US$ 264,956.22 million. 3. **Sulphuric acid; oleum**, worth US$ 141,402.54 million. 4. **Mixed alkylbenzenes, nes,** worth US$ 108,096.89 million. 5. **Crude or unrefined sulphur**, worth US$ 32,286.34 million.
Egypt	1. **Petroleum oils, etc, (excl. crude); preparation**, worth US$ 2,900,797.49 million. 2. **Gold in unwrought forms non-monetary**, worth US$ 2,872,120.52 million. 3. **Petroleum oils and oils obtained from bituminou**, worth US$ 1,197,764.45 million. 4. **Urea**, worth US$ 891,347.31 million. 5. **Television receivers including video monitors**, worth US$ 714,431.60 million.
Saudi Arabia	1. **Fuels**, worth US$ 132,022,025.33 million. 2. **Polypropylene, in primary forms** , worth US$ 4,764,506.44 million. 3. **Polyethylene having a specific gravity <0.94, i** , worth US$ 3,815,539.01 million. 4. **Polyethylene having a specific gravity >=0.94,** , worth US$ 3,626,995.12 million. 5. **Monobutyl ethers of ethylene glycol or of dieth** , worth US$ 2,110,105.50 million.
UAE	1. **Petroleum oils and oils obtained from bituminou** , worth US$ 105,123,364.80 million. 2. **Petroleum oils, etc, (excl. crude); preparation** , worth US$ 47,548,148.72 million. 3. **Gold in unwrought forms non-monetary** , worth US$ 29,188,130.78 million. 4. **Propane, liquefied** , worth US$ 20,445,416.14 million. 5. **Transmission apparatus, for radioteleph incorpo** , worth US$ 19,486,726.68 million.
Libya	1. **Petroleum oils and oils obtained from bituminou** , worth US$ 25,305,384.19 million. 2. **Natural gas, liquefied** , worth US$ 1,156,823.01 million. 3. **Petroleum oils, etc, (excl. crude); preparation** , worth US$ 1,078,108.52 million. 4. **Gold in unwrought forms non-monetary** , worth US$ 804,782.19 million. 5. **Butanes, liquefied** , worth US$ 166,070.65 million.
Kuwait	1. **Petroleum oils and oils obtained from bituminou** , worth US$ 28,629,492.31 million. 2. **Petroleum oils, etc, (excl. crude); preparation** , worth US$ 5,393,395.26 million. 3. **Propane, liquefied** , worth US$ 1,057,504.45 million. 4. **Butanes, liquefied** , worth US$ 766,360.99 million. 5. **Sulphonated, nitrated or nitrosated derivatives** , worth US$ 687,743.73 million.
Oman	1. **Petroleum oils and oils obtained from bituminou** , worth US$ 20,099,283.14 million. 2. **Natural gas, liquefied** , worth US$ 4,464,435.95 million. 3. **Petroleum oils, etc, (excl. crude); preparation** , worth US$ 4,362,339.06 million. 4. **Urea** , worth US$ 704,724.26 million. 5. **p-Xylene** , worth US$ 580,951.70 million.
Iran	1. **Petroleum oils and oils obtained from bituminou** , worth US$ 50,823,248.89 million. 2. **Petroleum oils, etc, (excl. crude); preparation** , worth US$ 9,011,955.72 million. 3. **Polyethylene having a specific gravity >=0.94,** , worth US$ 2,029,076.55 million. 4. **Natural gas, liquefied** , worth US$ 1,923,736.61 million. 5. **Propane, liquefied** , worth US$ 1,710,219.95 million.
MENA total export	**1. Petroleum oils and oils obtained from bituminou , worth US$ 155,347,361.20 million.** **2. Petroleum oils, etc, (excl. crude); preparation , worth US$ 58,085,639.58 million.** **3. Gold in unwrought forms non-monetary , worth US$ 35,870,968.02 million.** **4. Propane, liquefied , worth US$ 24,975,586.51 million.**

APPENDIX B

S&P Global ranking: oil and gas sector

Table B.1. The largest oil and gas companies in the World, 2022 [**Error! Reference source not found.**]

№	Company	Country	Revenue	Profits	Return On Invested Capital (ROIC)
1	Saudi Arabian Oil Co	Saudi Arabia	$400 149 mil	$105 303 mil	22%
2	Petroleo Brasileiro SA - Petrobras	Brazil	$85 501 mil	$20 148 mil	15%
3	PJSC LUKOIL	Russia	$166 700 mil	$13 911 mil	15%
4	Exxon Mobil Corp	USA	$278 981 mil	$23 040 mil	10%
5	Public JSC Gazprom	Russia	$1841 98 mil	$37 455 mil	9%
6	TotalEnergies SE	France	$184 634 mil	$16 032 mil	9%
7	Equinor ASA	Norway	$90 273 mil	$8 563 mil	11%
8	Chevron Corp	USA	$155 606 mil	$15 625 mil	9%
9	Shell plc	UK	$261 504 mil	$20 101 mil	8%
10	ConocoPhillips	USA	$46 660 mil	$8 079 mil	12%

APPENDIX C

Comparison of ESG and Sustainability frameworks

Table C.1 – Comparison of ESG and Sustainability frameworks

Title	**GRI [53]**	**SASB [53]**	**IIRC [53]**	**IPIECA [9]**	**UNGC**
Type	Standard	Standard	Standard	Guideline	Initiative
Scope	The GRI Reporting Standards identify material ESG impacts across all its activities and business relationships. It focuses on ESG topics that pose risks to both the company and its environment (prior to identifying opportunities)	The SASB Reporting Standards provide guidance to set up industry and sector-specific ESG reports, covering ESG topics across 5 dimensions (Environment, Social Capital, Human Capital, Business Model & Innovation, Leadership & Governance)	The international IR Framework provides connects sustainability disclosure to reporting on financial and other capitals. The overall purpose of which is to disclose how a company creates value across six capitals (financial, manufactured, intellectual, human, social and relationship, and natural capitals)	The standard is specialized for the oil and gas industry and covers indicators for industry-specific metrics, including oil and gas spills, CCUS technologies	UN Global Compact is a voluntary initiative for companies that are willing to set in motion changes to business operations so that the UN Global Compact and its Ten Principles become part of strategy, culture and day-to-day operations. Since July 2000, UN Global Compact has received more than 62,000 public reports by over 9,000 companies in 159 countries.
Audience	A diverse group of stakeholders, varying from investors, customers, employees, natural environment, vulnerable groups, to society in general	Investors (providers of financial capital) and regulators	Stakeholders whose primary use of the information is to make economic decisions	Stakeholders whose primary use of the information is to make economic decisions	A diverse group of stakeholders, varying from investors, customers, employees, natural environment, vulnerable groups, to society in general

Table C.1 *(continued)*

Approach to materiality	The GRI Reporting Standards adopt a double materiality concept, identifying both ESG issues that (potentially) have a significant financial impact (i.e. issues that are relevant to investors), and issues that will influence the assessments of other stakeholders (topics that impact people and the environment outside the organization)	Financially driven, meaning that the SASB Reporting Standards distinguish ESG topics that are reasonably likely to impact/pose a risk to the financial performance of the company	IIRC refers to a material issue as one that substantively affects, or has the potential to substantively affect, the organization's strategy, its business model, and one or more of the capitals it uses or affects in the short, medium, or long term	The guideline covers both the financial and environmental side of the impact, thereby distinguish ESG topics that are reasonably likely to impact/pose a risk to the financial performance of the company	The guideline covers both the financial and environmental side of the impact, thereby distinguish ESG topics that are reasonably likely to impact/pose a risk to the financial performance of the company
Advantages	The GRI Reporting Standards provide guidance for a thorough and collaborative ESG materiality analysis, taking into account main stakeholder perspectives and expectations The GRI Reporting Standards focus on value for the company, society and the environment which enhances the company's engagement with the United Nations Sustainable Development Goals	Approximately 75% of the accounting metrics in the SASB Standards are quantitative. The SASB materiality map presents a list of material ESG issues on an industry-by-industry basis, allowing users to compare and contrast the materiality of more than 40 issues across industries and sectors	The International IR Framework guides companies in setting up one, integrated report combining financial results and non-financial significant impacts The International IR Framework provides KPIs that combine financial measures with other components (e.g. the ratio of greenhouse gas emissions to sales)	IPIECA is the only global guidance involving both upstream and downstream sectors. IPIECA guidance also is applicable to integrated companies such as national OGCs that have a full value chain.	The UN Global Compact is the largest corporate sustainability initiative with two objectives: "Mainstream the ten principles in business activities around the world" and "Catalyse actions in support of broader UN goals, such as the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs)".

Table C.1 *(the end)*

Disadvantages	The GRI materiality analysis may be perceived as resource intensive, since the company is expected to consider impacts associated with its sector, products, geographic locations and specific circumstances. It is also requested to include third-party analyses and reports, and to verify the analysis this with the applicable GRI Sector Standards.	The SASB Reporting Standards limit companies' own prioritizing exercise by offering its materiality map, leaving less space and nuance for company-specific material ESG risks and opportunities The SASB Reporting Standards are not focused on ESG issues that are material for other than 'financial' stakeholders (e.g. customers, the environment, and surroundings of the company)	The International IR Framework's materiality analysis is an internal process, concluded without consent or input of stakeholders The International IR Framework may be perceived as rather complex and less intuitive to users in comparison to other ESG reporting frameworks	IPIECA guidance also includes specifications for the oil and gas sector, while the GRI framework may be applied to different industrial sectors.	It does not cover the specifics of the industry, as it is universal. Its materiality analysis is an internal process, concluded without consent or input of stakeholders

APPENDIX D

ESG Disclosure Guidance for Listed Companies

Table D.1. Compliance of Saudi ARAMCO's Sustainability Report to ESG Disclosure Guidance for Listed Companies

	Metric	Calculation	Corresponding GRI Standard	Saudi ARAMCO's Sustainability Report Compliance	Notes
ENVIRONMENTAL	E1. GHG Emissions	E1.1) Total amount in CO2 equivalents, for Scope 1 E1.2) Total amount, in CO2 equivalents, for Scope 2 (if applicable) E1.3) Total amount, in CO2 equivalents, for Scope 3 (if applicable)	GRI 305: Emissions 2016	+	Actual or estimated atmospheric emissions produced as a direct (or indirect) result of the company's consumption of energy. Please refer to the WRI/WBCSD GHG protocol.
	E2. Emissions Intensity	E2.1) Total GHG emissions per output scaling factor E2.2) Total non-GHG emissions per output scaling factor	GRI 305: Emissions 2016	+	Dividing annual emissions (numerator) by relevant measures of economic output (denominator). Scaling factors set by reporting company. Examples include: Revenues, sales, production units, employee headcount, physical floor space.
	E3. Energy Usage	E3.1) Total amount of energy *directly* consumed E3.2) Total amount of energy *indirectly* consumed	GRI 302: Energy 2016	-	Typically measured in megawatt-hours (MWh) or gigajoules (GJ). Direct energy is produced and consumed on company-owned or operated property. Indirect energy is produced elsewhere (i.e., utilities).
	E4. Energy Intensity	Total direct energy usage per output scaling factor	GRI 302: Energy 2016	+	Dividing annual consumption (numerator) by relevant measures of physical scale (denominator). Examples include: Revenues, sales, production units, employee headcount, physical floor space.

Table D.1 *(continued)*

	Metric	Calculation	Corresponding GRI Standard	Saudi ARAMCO's Sustainability Report Compliance	Notes
ENVIRONMENTAL	E5. Energy Mix	Percentage: Energy usage by generation type	GRI 302: Energy 2016	+	Quantified the specific energy sources most directly used by the company.
	E6. Water Usage	E6.1) Total amount of water consumed E6.2) Total amount of water reclaimed	GRI 303: Water and Effluents 2018	+	Water consumed, recycled, and reclaimed annually, in cubic meters (m3).
	E7. Environmental Operations	E7.1) Does your company follow a formal Environmental Policy? Yes/No E7.2) Does your company follow specific waste, water, energy, and/or recycling polices? Yes/No E7.3) Does your company use a recognized energy management system?	GRI 103: Management Approach 2016*	+	Information in Sustainability Report is full and clear.
	E8. Environmental Oversight	Does your Management Team oversee and/or manage sustainability issues? Yes/No	GRI 102: General Disclosures 2016	+	The company covers sustainability issues and has a management committee dedicated to sustainability-related issues
	E9. Environmental Oversight	Does your Board oversee and/or manage sustainability issues? Yes/No	GRI 102: General Disclosures 2016	+	Does your company cover sustainability issues in board meetings (as part of the official agenda) or has a board committee dedicated to sustainability-related issues?
	E10. Climate Risk Mitigation	Total amount invested, annually, in climate- related infrastructure, resilience, and product development		+	The company measured the total AED amount invested in climate-related issues, including R&D spend

Table D.1 *(continued)*

	Metric	Calculation	Corresponding GRI Standard	Saudi ARAMCO's Sustainability Report Compliance	Notes
SOCIAL	S1. CEO Pay Ratio	S1.1) Ratio: CEO total compensation to median Full Time Equivalent (FTE) total compensation S1.2) Does your company report this metric in regulatory filings? Yes/No	GRI 102: General Disclosures 2016	+/-	Information is included in Annual Report, but not in the Sustainability Report
	S2. Gender Pay Ratio	Ratio: Median male compensation to median female compensation	GRI 405: Diversity and Equal Opportunity 2016	-	As a ratio: the median total compensation for men compared to the median total compensation for women. Reported for Full Time Equivalent (FTEs) only; Use total compensation, including all bonus payments and incentives.
	S3. Employee Turnover	S3.1) Percentage: Year-over-year change for full-time employees S3.2) Percentage: Year-over-year change for part-time employees S3.3) Percentage: Year- over-year change for contractors/consultants	GRI 401: Employment 2016	-	Percentage of total annual turnover, broken down by various employment types is not included in Eng Report.
	S4. Gender Diversity	S4.1) Percentage: Total enterprise headcount held by men and women S4.2) Percentage: Entry- and mid-level positions held by men and women S4.3) Percentage: Senior- and executive-level positions held by men and women	GRI 102: General Disclosures 2016 GRI 405: Diversity and Equal Opportunity 2016	+	Percentage of male-to- female metrics, broken down by various organizational levels.
	S5. Temporary Worker Ratio	S5.1) Percentage: Total enterprise headcount held by part-time employees S5.2) Percentage: Total enterprise headcount held by contractors and/or consultants	GRI 102: General Disclosures 2016	-	There is no such information in Eng Report.

Table D.1 *(continued)*

	Metric	Calculation	Corresponding GRI Standard	Saudi ARAMCO's Sustainability Report Compliance	Notes
SOCIAL	S6. Non-Discrimination	Does your company follow non- discrimination policy? Yes/No	GRI 103: Management Approach 2016*	+	Published commitment, position statement, policy document that covers this subject.
	S7. Injury Rate	Percentage: Frequency of injury events relative to total workforce time	GRI 403: Occupational Health and Safety 2018	+	Total number of injuries and fatalities, relative to the total workforce.
	S8. Global Health & Safety	Does your company follow an occupational health and/or global health & safety policy? Yes/No	GRI 103: Management Approach 2016*	+	Published commitment, position statement, policy document that covers this subject.
	S9. Child & Forced Labor	S9.1) Does your company follow a child and/or forced labor policy? Yes/No S9.2) If yes, does your child and/or forced labor policy also cover suppliers and vendors? Yes/No	GRI 103: Management Approach 2016*	+	Published commitment, position statement, policy document that covers this subject.
	S10. Human Rights	S10.1) Does your company follow a human rights policy? Yes/No S10.2) If yes, does your human rights policy also cover suppliers and vendors? Yes/No	GRI 103: Management Approach 2016	+	Published commitment, position statement, policy document that covers this subject.
GOVERMENTAL	G1. Board Diversity	G1.1) Percentage: Total board seats occupied by men and women G1.2) Percentage: Committee chairs occupied by men and women	GRI 405: Diversity and Equal Opportunity 2016	+	The percentage of women at the board. The percentage of committee chairs held by women.
	G2. Board Independence	G2.1) Does company prohibit CEO from serving as board chair? Yes/No G2.2) Percentage: Total board seats occupied by independent board members		+	This information is highlighted in the Report
	G3. Incentivized Pay	Are executives formally incentivized to perform on sustainability?		-	There is no information about this subject in Eng Report

Table D.1 *(the end)*

	Metric	Calculation	Corresponding GRI Standard	Saudi ARAMCO's Sustainability Report Compliance	Notes
GOVERMENTAL	G4. Supplier Code of Conduct	G4.1) Are your vendorsor suppliers required tofollow a Code of Conduct? G4.2) If yes, what percentage of your suppliers have formallycertified their compliance with the code?		-	There is no information about this subject in Eng Website and Report
	G5. Ethics & Prevention of Corruption	G5.1) Does your company follow an Ethics and/or Preventionof Corruption G5.2) If yes, what percentage of your workforce has formallycertified its compliancewith the policy?		+	Published commitment, position statement, policy document that covers this subject.
	G6. Data Privacy	G6.1) Does your company follow a Data Privacy policy? Yes/No G6.2) Has your company taken steps to comply with GDPR rules? Yes/No		+	Published commitment, position statement, policy document that covers this subject.
	G7.SustainabilityReporting	Does your company publish a sustainabilityreport? Yes/No		+	Annual report's segment + Sustainability Report
	G8. Disclosure Practices	G8.1) Does your company provide sustainability data to sustainability reportingframeworks? Yes/No G8.2) Does your company focus on specific UN SDGs? Yes/No G8.3) Does your company set targets andreport progress on the UN SDGs?		+	GRI based report, Sustainability data provided, SDGs tracking, clear targets
	G9. External Assurance	Are your sustainability disclosures assured or verified by a third-partyaudit firm? Yes/No	* GRI 103: Management Approach 2016 isto be used in combination withthe topic specific Standards	+/-	Only **six performance metrics**. **EY** (Fatalities, Female employees (%) of total employees and Energy Intensity (ratio of total net energy consumption and total production, thousand Btu per boe) **KPMG** has provided assurance over our 2021 data on Scope 1 emissions (million metric tons of CO_2e), Scope 2 emission (million metric tons of CO_2e) and Upstream Carbon Intensity (Ratio of total upstream GHG emissions (Scope 1 and Scope 2) to production sold, kg of CO_2 e/boe).

АНТИПЛАГИАТ
ОБНАРУЖЕНИЕ ЗАИМСТВОВАНИЙ

Отчет о проверке на заимствования №1

Автор: Митупова Надежда
Проверяющий: Касаткина Анна Наильевна
Организация: Томский Государственный Университет

Отчет предоставлен сервисом «Антиплагиат» - http://tsu.antiplagiat.ru

ИНФОРМАЦИЯ О ДОКУМЕНТЕ

№ документа: 362
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Число предложений: 877

ИНФОРМАЦИЯ ОБ ОТЧЕТЕ

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Проверенные разделы: основная часть с. 1-66
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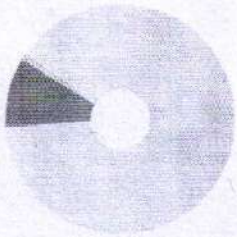

СОВПАДЕНИЯ	САМОЦИТИРОВАНИЯ	ЦИТИРОВАНИЯ	ОРИГИНАЛЬНОСТЬ
10,46%	0%	0,51%	89,03%

Совпадения — фрагменты проверяемого текста, полностью или частично сходные с найденными источниками, за исключением фрагментов, которые система отнесла к цитированию или самоцитированию. Показатель «Совпадения» – это доля фрагментов проверяемого текста, отнесенных к совпадениям, в общем объеме текста.

Самоцитирования — фрагменты проверяемого текста, совпадающие или почти совпадающие с фрагментом текста источника, автором или соавтором которого является автор проверяемого документа. Показатель «Самоцитирования» – это доля фрагментов текста, отнесенных к самоцитированию, в общем объеме текста.

Цитирования — фрагменты проверяемого текста, которые не являются авторскими, но которые система отнесла к корректно оформленным. К цитированиям относятся также шаблонные фразы; библиография; фрагменты текста, найденные модулем поиска «СПС Гарант: нормативно-правовая документация». Показатель «Цитирования» – это доля фрагментов проверяемого текста, отнесенных к цитированию, в общем объеме текста.

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Источник — документ, проиндексированный в системе и содержащийся в модуле поиска, по которому проводится проверка.

Оригинальный текст — фрагменты проверяемого текста, не обнаруженные ни в одном источнике и не отмеченные ни одним из модулей поиска. Показатель «Оригинальность» – это доля фрагментов проверяемого текста, отнесенных к оригинальному тексту, в общем объеме текста.

«Совпадения», «Цитирования», «Самоцитирования», «Оригинальность» являются отдельными показателями, отображаются в процентах и в сумме дают 100%, что соответствует полному тексту проверяемого документа.

Обращаем Ваше внимание, что система находит текстовые совпадения проверяемого документа с проиндексированными в системе источниками. При этом система является вспомогательным инструментом, определение корректности и правомерности совпадений или цитирований, а также авторства текстовых фрагментов проверяемого документа остается в компетенции проверяющего.

№	Доля в тексте	Источник	Актуален на	Модуль поиска	Комментарии
[01]	3,79%	Оценка и формирование источников финансирования инвестици... https://core.ac.uk	02 Апр 2023	Переводные заимствования по коллекции Интернет в русском сегменте	
[02]	1,4%	Правовое регулирование "ответственного" инвестирования в Рос... http://ivo.garant.ru	21 Мая 2022	Переводные заимствования по коллекции Гарант: аналитика	
[03]	1,35%	Боголюбов С.А., Болтанова Е.С., Выпханова Г.В. и др. Правовое обе... http://ivo.garant.ru	07 Июн 2014	Переводные заимствования по коллекции Гарант: аналитика	
[04]	0,94%	Национальный стандарт зеленых финансов в России 2020 г. - пров... http://ivo.garant.ru	13 Ноя 2021	Переводные заимствования по коллекции Гарант: аналитика	
[05]	0,83%	https://www.undrr.org/media/84646/download https://undrr.org	10 Фев 2023	Переводные заимствования по коллекции Интернет в русском сегменте	
				Переводные	