Main aspects of the oil industry within the sustainable development concept

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Abstract. The main aspects of the industry development within the concept of sustainable development are considered in the article by the example of the oil industry. Sustainable development means the collaboration of three principal components, including ecology, society, economy. According to the carried-out analysis, the field of application and the stages of development of this concept are pointed out. The authors defined the economic, social, technology, ecological and political factors, influencing the development of the oil and gas industry. Thus, the application of the sustainable development concept in the oil industry will allow supporting the balance between the economy and the environment without causing damage to the environment, keeping resource base and providing stable improvement of quality of the population life.

1. Introduction

The first half of the 21st century is characterized by global changes in the field of science, equipment and technologies. The Internet, artificial intelligence, robotics and many other things became the realities of today. It is the century of boundless technological capabilities. However, the current state of the society is the subject to many crisis phenomena, which are realized, first of all, with the technologicalization of all the spheres of human activity. The important consequences of these phenomena include the emergence of contradictions in the relations of human with the nature, of person with the society, the increase in number of technogenic and natural disasters. On September 15, 2015 the members of the UN offered the concept and some purposes in the field of sustainable development for the solution of these problems [1]. These purposes are aimed at the poverty eradication, preserving of resources of the planet and ensuring wellbeing for everyone. Within the adopted concept seventeen purposes are distinguish. Each of the purposes contains its indicators. The term of achievement is defined as the interval up to 15 years of this concept implementation.

The sustainable development concept is the target model of the civilization development, which proceeds from the need to provide the world balance between the solution of social-and-economic problems for the recent generations and preserving the environment for them [2]. The principle of the balanced economic, social and eco-friendly development is the basis for the target model of the civilization development [3].

The significant contribution to forming of the methodology of the sustainable development concept was made by such specialists as: Akimova T., Bobyliov A., Verstina N., Vinnokurov And., Danilova-Danilyan V., Tolstykh of T. Shimov O., etc. [4-8].
Sustainable development supposes long existence and development throughout unlimited time, therefore the creation of the concept within the triad: ecology-society-economy is a labour-consuming task. Thereof, the solution of great social, ecological and economic tasks has to be considered at the world and national level. The practical realization of the sustainable development concept, accepted by the UN, demands active participation of all the society sectors: public authorities, business structures, and society in general. It is an operated process, which assumes the development of economy and society, taking into account the careful use of natural resources.

The sustainable development concept really assumes certain restrictions in the field of the use of natural resources, but these restrictions are not absolute, they are relative and connected with the modern level of the equipment as well as with the social organization and with the capability of the biosphere to cope with the consequences of human activity. But technical aspects and aspects of the social organization can be taken under control and improved. That will open the way to a new era of economic growth [9]. The civilization development cannot be separable from the environment. The international community joined in the solution of these problems; sustainability strategies are developed in the majority of the countries, the relevant ministries and departments appeared. The governments of the leading states of the world have developed and accepted their sustainability strategies of the countries since the beginning of the 1990s. But the accepted strategies were not implemented, they were purely declarative in many respects.

2. Materials
The sustainable development happens in three main areas: economic growth, preserving of natural resources and environment, social development.

It is possible to allocate three main stages of the development of the Sustainable Development Concept application in the international community:

1) sustainable development is considered as the high level of individual income, i.e. its realization supposes steady rise. It in turn results in the capability of the national economy to reach an annual gain of GDP, providing its excess over the rate of the population growth;

2) implementation of the sustainable development concept is considered as the basic component of the social indicators improvement (liquidation of poverty, bad income distribution, unemployment, etc.); that is possible due to systematic increase in the economic growth rates;

3) the introduction of the sustainable development concept provides "the general promotion of the society as whole" through satisfaction of basic needs of the person in addition to the achievement of his or her subjectivity and human feelings and granting the liberty of choice. At this stage there is understanding that poverty is one of the factors, creating the threat of lag for the developing countries. At this stage "International Committee on the Development and Environment" made the report, in which the new sustainable development concept, meeting the needs of modern generation without exhausting the future resources, is created. It is necessary to find the balance among the exhaustion of the available resources, such as oil, the population size and the requirements of development, without consequences for the level of future generations living.

It is obvious that the idea of the sustainable development changes, the needs of people are specified, the technologies are reoriented, the mentality of the states changes, etc. It means that the implementation of its principles has to be considered step by step and has to be based on harmonization of interaction of the international community with the nature. So, some structural and territorial shifts in the world economy are necessary.

3. Results and Discussion
The special role in the implementation of the obstacles, set by the Strategy belongs to the industrial enterprises. Industrial enterprises bear a great share of the responsibility in the development of the country and society in general [10]. The enterprises face many the directions, capable to provide the increase in the activity efficiency within the sustainable development concept. The main directions include: the development of a technique of the sustainable development strategy implementation in the
industry in general and at certain enterprises in particular and the improving of the competitiveness of industrial enterprise.

The leading role in the industry is assigned to the oil industry which is one of strategic components of the world economy growth and development of world power, the guarantor of revenues of the state budget, ensuring activity of all the industries in the national economy as well as of economic, political and social stability in the society.

World oil market has its own features and undergoes significant changes during the last decades. During 2011-2016 the world oil extraction increased by 9.3%. Saudi Arabia, Russia and the USA, which make up the share of 38.4% of all world oil extraction in 2016, are the traditional market leaders according to the production indicators. A bit different situation on oil reserves. So as of the end of 2019 the leader is Venezuela (300.878 mln. barrel), Saudi Arabia (266.4 mln. barrels) is on the second place, the USA (35.2 mln. barrels) is on the tenth place. The rating of the countries on the oil inventory level as of the end of 2019 is presented in Figure 1.

![Reserves of oil, bln. barrels](image)

**Figure 1.** Top-10 of the countries according to the oil inventory level in 2019 [2]

Crude oil Trade is the main component of the international trade and any change in prices has a huge impact on the international trade balance. So according to the Research financial institution of the Ministry of Finance of the Russian Federation, in January, 2019 practically all the OPEC countries OPEC have the decrease in oil production in comparison with last month (Table 1). That is within the agreement on "freezing" of oil extraction that could not avoid affecting on the revenues of these countries’ budgets. However, even at the same time the receipts from oil extraction make up the most part of revenues of the budgets of the oil exporting countries.

It is possible to distinguish the following major factors influencing the development of the oil and gas industry:

1) economic factors (the national economy growth rates and GDP; volatility of the oil prices; production cycles of the economy development; investment injections in the industry);

2) social factors (rates of the population growth; globalization and urbanization);

3) technological factors (innovation development in the field of oil production and alternative power engineering; the use of clever technologies; application of the innovation forms and methods of production organization and work organization);

4) ecological factors (application of the sustainable development concept, offered by the UN; world regulations and rules of the environmental protection);

5) political factors (maintenance of the investment climate; improvement of the right regulation in the field of pricing and rules of oil extraction).
In 2016 the largest exporters of crude oil in the world were Saudi Arabia – 7.463; Russia – 5.08; Iraq – 3.804; Canada – 2.742; The UAE – 2.408 in mln barrels a day [11]. However, according to the Lukoil forecasts, Iran and Iraq will be the main sources of growth of traditional oil extraction among the members of Organization of the Petroleum Exporting Countries (OPEC) till 2030 [12].

Table 1. Dynamics of oil production in OPEC countries

| Countries       | Target level of oil production according to the old conditions | Oil production December, 2018 | Oil production January, 2019 | Absolute deviation from the target value December, 2018 | Absolute deviation from the target value January, 2019 |
|-----------------|---------------------------------------------------------------|-------------------------------|-------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| Algeria         | 1.039                                                        | 1.05                          | 1.041                         | 0.011                                                  | 0.016                                                  |
| Angola          | 1.673                                                        | 1.491                         | 1.416                         | -0.182                                                 | -0.065                                                 |
| Gabon           | 0.193                                                        | 0.194                         | 0.193                         | 0.001                                                  | 0.012                                                  |
| Iraq            | 4.351                                                        | 4.712                         | 4.669                         | 0.361                                                  | 0.157                                                  |
| Congo           | -                                                            | 0.331                         | 0.31                          | -                                                      | -                                                      |
| Kuwait          | 2.707                                                        | 2.8                           | 2.71                          | 0.093                                                  | -0.014                                                 |
| Nigeria         | 1.8                                                          | 1.74                          | 1.792                         | -0.06                                                  | 0.107                                                  |
| UAE             | 2.874                                                        | 3.223                         | 3.078                         | 0.349                                                  | 0.006                                                  |
| Saudi Arabia    | 10.06                                                        | 10.562                        | 10.213                        | 0.504                                                  | -0.098                                                 |
| Ecuador         | 0.522                                                        | 0.521                         | 0.515                         | -0.002                                                 | 0.007                                                  |
| Equatorial Guinea | 0.178                                                    | 0.11                          | 0.117                         | -0.068                                                 | -0.006                                                 |
| 11 OPEC countries | -                                                          | 25.937                        | 26.051                        | -                                                      | 0.114                                                  |
| Iran *          | 3.797                                                        | 2.758                         | 2.754                         | -1.039                                                 | -                                                      |
| Libya *         | 1                                                            | 0.947                         | 0.895                         | -0.053                                                 | -                                                      |
| Venezuela *     | 1.972                                                        | 1.165                         | 1.106                         | -0.807                                                 | -                                                      |
| 14 OPEC countries | 32.16 **                                                   | 31.603                        | 30.806                        | -0.562                                                 | 32.16 **                                                |

* According to the new conditions Iran, Libya, Venezuela received release from the transaction since January 2019.

** For which According to former terms of transaction the target level of production of oil was not established except Congo

As for the field of sustainable development, the activity of the oil companies is performed in collaboration with other industries. In such conditions the target orientation to the simultaneous and interconnected increase in the resource potential production, the increase in financial results, providing social and ecological safety amplifies. Thus, the implementation of the sustainable development Concept in the oil industry is characterized by the following aspects of sustainable development [13]:

1. Ecological aspect. The process of the sustainable development of the industry requires the rational and balanced management of the environment. The sustainable development philosophy is based on the fact that exhaustion of natural resources has a harmful impact on the development and economy in general. Therefore, it is necessary:
   - to develop a peculiar balance of the economic and ecological system without exhaustion of natural resources, at the same time to consider and observe ecological safety;
   - to eliminate poverty and to revise the structure of income distribution in the sake of the interests of the people below the poverty line. The solution of these matters is important not only in the terms of
social justice, but also in the terms of environment protection and also for the achievement of "ecological balance".

2. Human aspect. This aspect should be considered from the position of the increase in growth rates of the oil industry, when preserving stability of dynamics of the population growth rates without having a harmful impact on natural resources. Therefore, the value of sustainable development is the basis of the distribution of resources of oil production and refining for ensuring satisfaction of the basic needs of people (education, medicine, providing with clear drinking water and ecological products, solution of housing problems, etc.).

3. International aspect. The scientists revealed close interrelation between the nature of the global economic system and the exhaustion of natural reserves. The majority of the countries tries to increase the rates of extraction of raw materials (including oil), thereby providing economic development and growth. In such conditions protection of natural resources goes by the wayside or it is performed within complete isolation from the outside world. That affects the ecological component of the environment extremely harmful.

Thus it is possible to prove that the oil industry is the perspective direction within the implementation of the sustainable development:

1. It is of special interest as a financing source of the capital, consumer income and services stimulating economic development of the state, industry and the separate enterprises, it also allows to attract and perform additional investments at the expense of the high level of financial return from the oil export.

2. It is the raw resource which can be used for the industrial base creation and can be one of the production elements for other industries.

3. It has an opportunity to act as the employer for citizens of the oil exporting countries. It allows one to improve the situation in the labour market, to provide the growth in incomes of the population, to reduce the unemployment level and to reduce the quantity of the needy population.

3. Ecological aspect. The development of the oil industry does not always contradict the ecological postulates. Rationalization of the production processes and the energy use can be the source of the increase in the production efficiency, and at the same time it meets the nature protection purposes, saving non-renewable resources. However, it is impossible to disprove the fact of the existence of some environmental impacts as well as the problems, related with oil production and refining. These are the problems of water purification, disposal of gas, leak of oil and gas from pipes or tanks and so on. The ecological aspects allowing one to prevent environmental disasters are considered by the development programmes of the oil industry for the elimination of such consequences.

The environment and the oil industry are continuously interconnected. The development of the industry is not possible due to degradation of the environment and exhaustion of natural resources. At the same time, it is impossible to protect and preserve the environment in case of limiting the economic growth. Maintenance of such a balance allows one to raise the level of the population living by the achievement of sustainable development. It is obvious that the majority of oil-producing countries consider the environmental standards and follow global technological developments in this area.

4. Conclusion
Thus, it is possible to conclude that the main task of the sustainable development concept in the oil industry, as one of the main sources of income of importing countries, is the maintaining a certain balance between the economic development of the country, industry, its aspiration to the maximize profit on the one hand, and the long-term interests, which consist in preserving of resource base and permanent improvement of quality of life, human potential, on the other hand.

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