ЭКОНОМИЧЕСКИЕ НАУКИ

THE PLACE OF THE CHEMICAL INDUSTRY IN THE WORLD

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ABSTRACT

The article analyses the world's place of chemical industry. The purpose of this research study is to provide a comprehensive situation of the chemical industry in the world, with our primary focus on a few countries; U.S.A, Germany, China and Nigeria, what challenges face the chemicals sector as it moves toward green (sustainable) chemistry. The main attention is also paid to the impact of these chemical industries on the world's economy.

Keywords: World, development, factors, impact, sustainability, chemical Industry, GDP, USA, Germany, Russia, Nigeria

The chemical industry has had a longstanding presence worldwide, providing inputs into manufacturing activities that benefit living standards across the globe, while also contributing to addressing a variety of global sustainability challenges.

The global chemicals industry is a complex and important part of the global economy and supply chain network. The production of chemicals involves converting raw materials such as fossil fuels, water, minerals, metals, and so on, into tens of thousands of different products that are central to modern life.



Figure 1 – The map of the world.

The map shows various extreme points and other important features of the Earth, such as continents, oceans and large islands, deserts, mountains, countries, and capital cities.

The total area of the earth's surface (land and water) is slightly more than 510 million km² at sea level (100%). Approximately 360 million km² are water, the salty liquid between the dry land (almost 71%). The rest, about 29% of the planet's surface, is dry land, rock, stones, sand, mountains, deserts, rivers and lakes, arable land, etc. The total land area, including Antarctica, is about 150 million km². The largest countries by area are: Russia (17,098,242 km²), Canada (9,984,670 km²), United States (9,833,517 km²).

Chemical Industry is as broad as ever before; There are a wide variety of products that are classified as chemical products, which can be categorized into the following segments: basic chemicals, pharmaceuticals, specialties, agricultural chemicals, and consumer products. Products such as plastic resins, petrochemicals, and synthetic rubber are included in the basic chemicals segment, and products such as adhesives, sealants, and coatings are among the products included in the specialty chemicals segment. The chemical domain plays a vital role as an applied science in diverse areas that influence human society ranging from economic, environmental, and political stability. The chemical industry has been instrumental in human development and products created by the chemicals industry have had an effect on a number of areas, such as agriculture, hygiene, food, painting, and petrochemistry, etc. Since chemical industry is based on science and technology, its development is more important in developed countries. But now, so many

developing countries are also important producers of several chemicals.

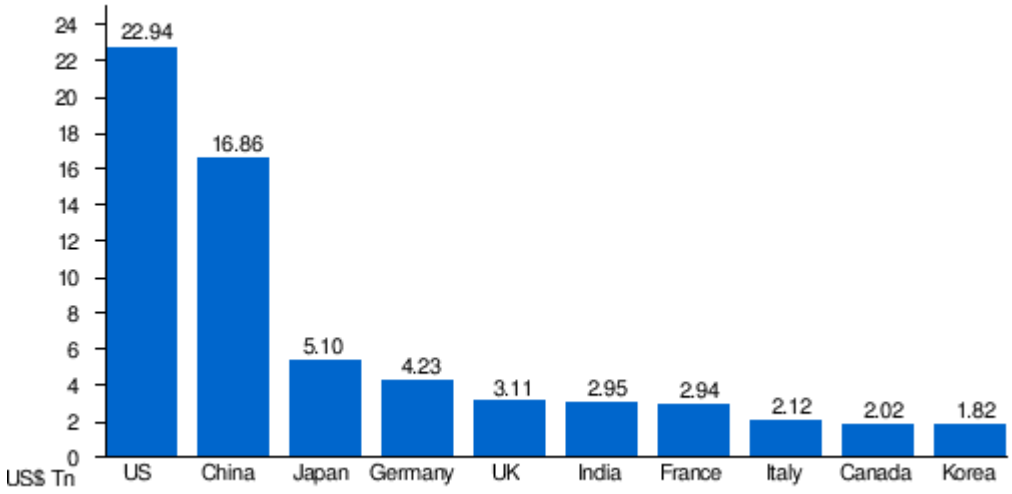


Figure 2 – Top Chemical Companies in the World

In 2019, the total revenue of the global chemical industry amounted to almost four trillion U.S. dollars.

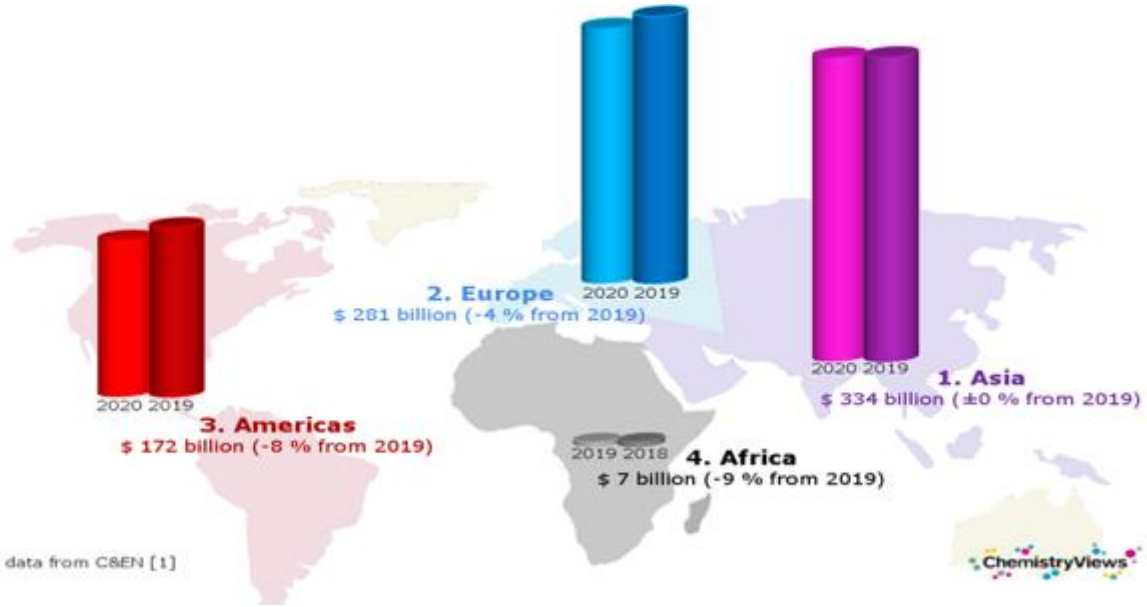


Figure 3 – Chart showing top chemical industries in the world.
Source – Data taken from C&EN

In 2019, the chemical industry's total worldwide revenue stood at some 3.94 trillion U.S. dollars. Chemical industry revenues reached a record high in 2014, at a total of 5.4 trillion U.S. dollars worldwide.

The Gross Domestic Product (GDP) is an economic construct that measures a country's production in a given amount of time. The GDP includes all goods and services produced in a country regardless of their purpose. It aggregates all private and public consumption, investment, government outlays and net exports. Mostly calculated on an annual basis, the GDP is one of the most commonly used indicators of economic activity. The GDP is a good measure of the absolute size of an economy but it is not adjusted for a country's size, and thus not perfectly suited for country to country comparisons. It is calculated by first adding together a country's total consumer spending, government spending, investments and exports; and then deducting the country's imports (Statista Research Department, Jan 18, 2022) Gross domestic product per capita is annual GDP divided by the average population from the same year, which allows for a GDP calculation per inhabitant of a country. Real Gross domestic product is an inflation-adjusted measure that reflects the value of all goods and services produced in a given year, expressed in base-year prices.

The United States' economy is the largest in the world as measured by nominal GDP. The biggest contributor to that GDP is the economy's service

sector, which includes finance, real estate, insurance, professional and business services, and healthcare.

The United States has a relatively open economy, facilitating flexible business investment and foreign direct investment in the country. It is the world's dominant geopolitical power and is able to maintain a large external national debt as the producer of the world's primary reserve currency. The U.S. economy is at the forefront of technology in many industries, but it faces rising threats in the form of economic inequality, rising healthcare and social safety net costs, and deteriorating infrastructure. It is the world's leading country in the production of chemical products. It produces nearly 30 to 35 per cent nitric acid, soda ash and caustic soda of the world and also ranks second in the production of sulphuric acid.

On a global scale, the U.S. share of GDP adjusted for Purchasing Power Parity has been in the range of 20 percent over the last few years, give or take a few percentage points. The United States has the largest GDP worldwide, with a significant lead over China, Japan and Germany.

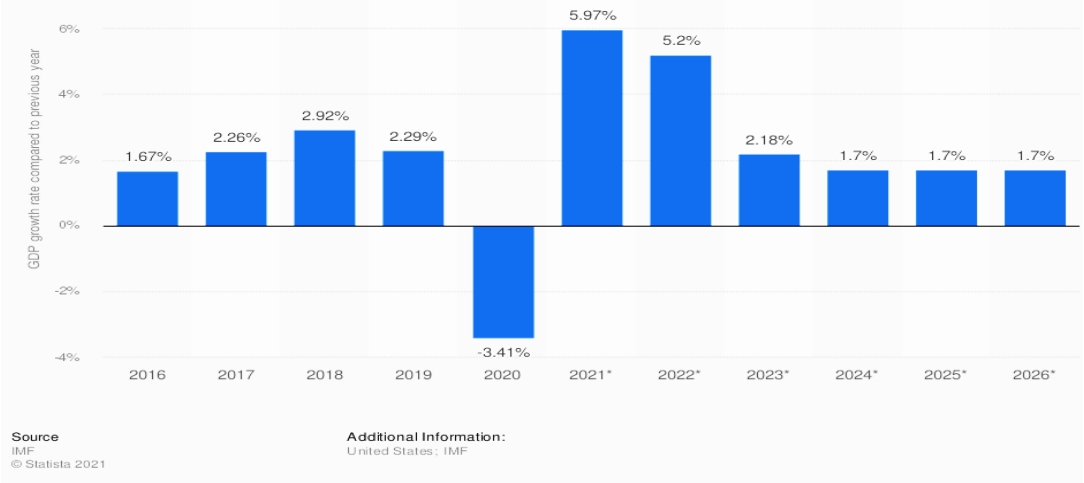


Figure 4 – U.S. GDP growth rate from 2016-2026 adapted from IMF statistics 2021.

In 2020, the U.S. GDP decreased by 3.41% (fig. 4) from the previous year to about 20.9 trillion U.S. dollars. This decrease in GDP can be attributed to the impact of the coronavirus pandemic. Gross domestic product (GDP) refers to the market value of all goods and services produced within a country. Currently, the United States is ranked first in the world GDP ranking After the economic effects of the coronavirus (COVID-19) pandemic, the real U.S. GDP increased by 2.1 percent in the third quarter of 2021. (Published by Statista Research Department, Jan 18, 2022).

The factors responsible for the development of chemical industry in USA are: **t**he development of science and technology, high degree of industrial development, availability of raw material, large and expanding market, capital through multinational companies.

The centres of chemical industry in USA are widely distributed. The largest concentration of chemical industry is in the northern states of Pennsylvania, Ohio, Kentucky, Indiana, Tennessee, Alabama, Virginia, etc. Some industries often require products of other chemical industries.

This interdependence or symbiotic relationship between the chemical plants forced most of the industrial establishments to settle within the same region. The other reasons responsible for this higher concentration in those states are the presence of nearby market, excellent transport facilities and availability of all kinds of raw materials within their periphery.

Apart from these states, almost all other states have at least a few chemical-producing units. The Atlantic coastal tracts ranging from New York, New Jersey, Maryland to the south-eastern state of Florida contribute more than 70 per cent of the chemical output. Of late, states of southern USA are heading for rapid development of chemical industry. The states like New Mexico, Arizona, Utah, Colorado, Kansas, and Oklahoma are progressing in such a way that, within a few decades these southern states may equal the production of the north-eastern states.

In US, sulphuric acid is produced in many parts of the country. But the major sulphuric acid-producing states are Kansas, Oklahoma, Colorado, Texas and Louisiana.

The ammonium products are manufactured in the northern states at Kentucky, West Virginia, Tennessee and Indiana. Soda ash is mostly produced in the states of Ohio, Michigan, New York, Virginia and Texas. Caustic soda and chlorine are produced in the states of Ohio, Virginia, North and South Carolina and Georgia.

All these heavy chemical products have a large and ready market throughout USA. The light chemical plants are the major buyers of these products. Light chemical industry includes various products ranging from detergents, toilet products to pharmaceuticals. These products are secondary in nature and mostly produced from the basic or heavy chemical products. Several multinational companies control the industry in USA. The internationally famous companies are now operating from USA, i.e., companies like Lever Brothers, Colgate and several other detergent producers, and Max Factor. Helene Curtis in toilet products has dominated international market for several decades. All these factories are also located within Atlantic coastal areas for export advantage.

Germany is also a leading country in chemical industry. In Germany, the chemical industry began as early as in 1886 with the organisation and early growth of the dyestuffs and potash industry. The German chemical company BASF was ranked number one in the ranking of the world's leading chemical companies based on revenue in 2021, generating a revenue of approximately 75.5 billion U.S. dollars (as of the end of fiscal year 2020). Fourth among world economies is Germany, with a 2020 GDP of $3.85 trillion. Germany is also Europe's largest economy.

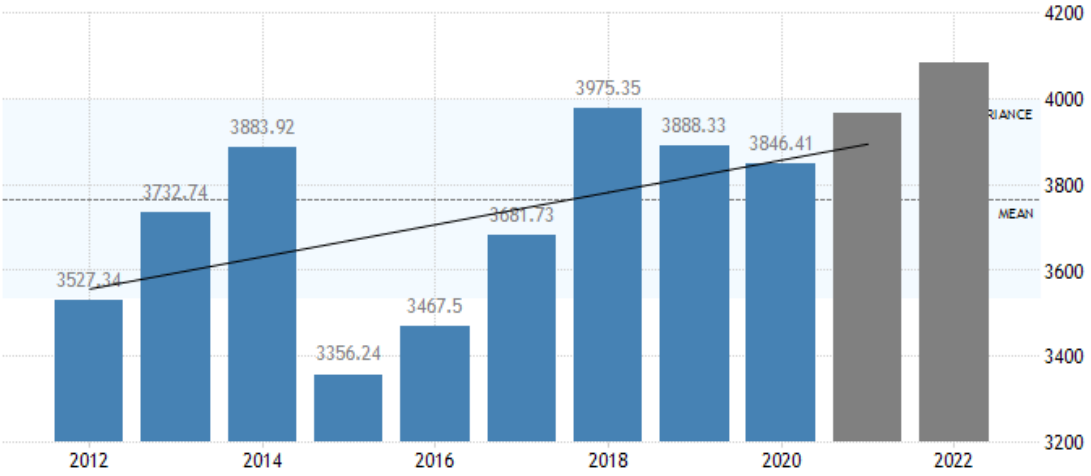


Figure 5 – Germany GDP growth rate, adapted from Trading Economics.

GDP in Germany is expected to reach 4200.00 USD Billion by the end of 2022, according to Trading Economics global macro models and analyst expectations. In the long-term, the Germany GDP is projected to trend around 4450.00 USD Billion in 2023 and 4680.00 USD Billion in 2024, according to our econometric models. BASF is the chemical company with the highest sales in 2020.

Germany is a top exporter of vehicles, machinery, chemicals, and other manufactured goods and has a highly skilled workforce. Germany, however, faces some demographic challenges to its economic growth. Its low fertility rate makes replacing its aging workforce more difficult, and its high levels of net immigration strain its social welfare system.

In Germany, chemical industry has been developed because of the certain favourable factors, such as: economic stability and research facilities, availability of raw materials like salt, potash, limestone, dolamite, sulphur, etc.; development of thermal power, and extensive market facilities.

The areas of chemical industry in Germany are concentrated in Rhine valley and Upper Saxony. The four main areas are the Ruhr region, Frankfurt region, Northern Rhine region and Upper Saxony region.

China's chemical industry (around $1.5 trillion of sales in 2017) has been the largest in the world in view of revenue since 2011, contributing half of the growth of the world chemical market over the past two decades (Hong et al., 2019). China has the world's second largest nominal GDP in current dollars and the largest in terms of PPP. With annual growth that consistently outpaces that of the United States, China may be on track to become the largest economy in the world by nominal GDP in the years to come. China is planning an ambitious industrial policy strategy to take its chemical industry to the next stage of development – a strategy outlined in the "13th Five-Year Plan" for the Chinese petroleum and chemical industry. China is looking to move from "following the lead" to "taking the lead" and from a "big country" to a "great power" of the petroleum and chemical industry, leading on technology innovation and trade and prevailing in international markets.

As China has progressively opened its economy over the past four decades, economic development and living standards have greatly improved. As the government has gradually phased out collectivized agriculture and industry, allowed greater flexibility for market prices, and increased the autonomy of businesses, foreign and domestic trade and investment have taken off. Coupled with an industrial policy that encourages domestic manufacturing, this has made China the world's number one exporter. Despite these advantages, China faces some significant challenges, such as a rapidly aging population and severe environmental degradation.

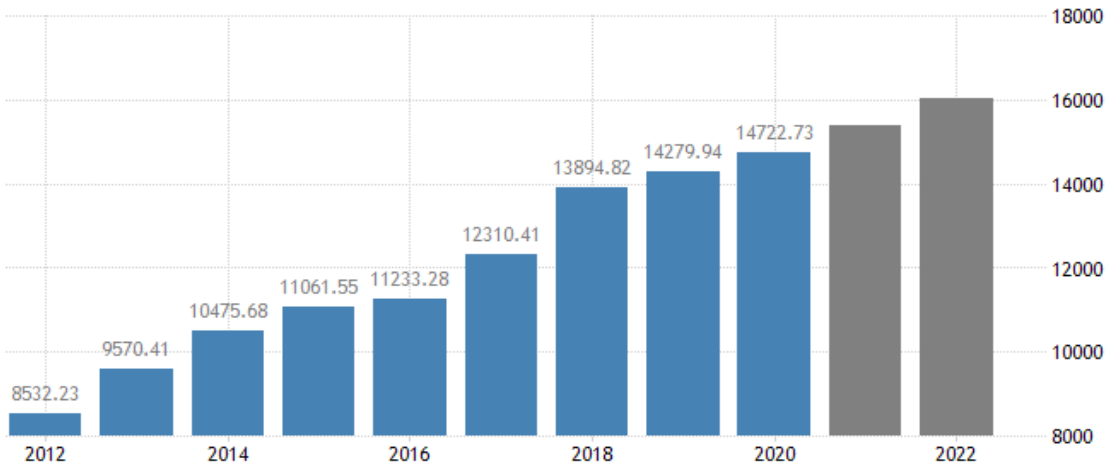


Figure 6 – The GDP value of china from 2012-2022, adapted from Trading

The Gross Domestic Product (GDP) in China averaged 2576.68 USD Billion from 1960 until 2020, reaching an all time high of 14722.73 USD Billion in 2020 and a record low of 47.21 USD Billion in 1962. GDP was worth 14722.73 billion US dollars in 2020, according to official data from the World Bank. The GDP value of China represents 13.04 percent of the world economy. GDP in China is expected to reach 15600.00 USD Billion by the end of 2021, according to Trading Economics global macro models and analysts expectations. In the long-term, the China GDP is projected to trend around 16700.00 USD Billion in 2022 and 17400.00 USD Billion in 2023, according to our econometric models.

The economy of Nigeria is a middle-income, mixed economy and emerging market, with expanding manufacturing, financial, service, communications, technology and entertainment sectors. It is ranked as the 27th-largest economy in the world in terms of nominal GDP, and the 24th-largest in terms of purchasing power parity. Nigeria has the largest economy in Africa. The country's re-emergent manufacturing sector became the largest on the continent in 2013, and it produces a large proportion of goods and services for the region of West Africa. The essential economic performance of a country is reflected by the gross domestic product. So the total of all goods and services sold. Nigerian GDP at purchasing power parity (PPP) has almost tripled from $170 billion in 2000 to $451 billion in 2012, though estimates of the size of the informal sector (which is not included in official figures) put the actual numbers closer to $630 billion. Subsequently, the GDP per capita doubled from $1400 per person in 2000 to an estimated $2,800 per person in 2012. Again, with the inclusion of the informal sector, it is estimated that GDP per capita hovers around $3,900 per person. The country's population increased from 120 million in 2000 to 160 million in 2010. The GDP figures were to be revised upwards by as much as 80% (percent) when metrics were to be recalculated subsequent to the rebasing of its economy in April 2014. Worldwide gross domestic product in 2020 was at about 10.922 US Dollar per capita. In contrast, the GDP in Nigeria reached 2.097 US dollars per inhabitant, or 432.29 bn US Dollar in the whole country. Nigeria is therefore currently ranked 25 of the major economies.

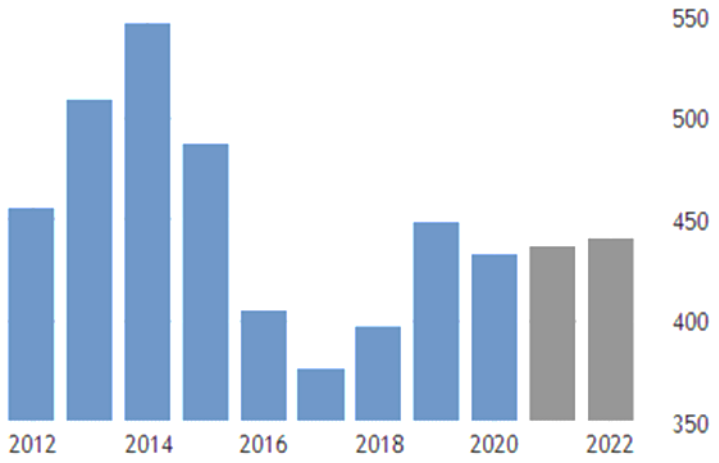


Figure 7 – Chart on Nigeria GDP

The Gross Domestic Product (GDP) in Nigeria was worth 432.30 billion US dollars in 2020, as shown in fig.7 according to official data from the World Bank. The GDP value of Nigeria represents 0.38 percent of the world economy. GDP in Nigeria is expected to reach 440.00 USD Billion by the end of 2021, according to Trading Economics global macro models and analyst expectations. In the long-term, the Nigeria GDP is projected to trend around 445.00 USD Billion in 2022 and 450.00 USD Billion in 2023, according to our econometric models.

While Nigeria has made some progress in socio-economic terms in recent years, its human capital development ranked 150 of 157 countries in the World Bank's 2020 Human Capital Index. The country continues to face massive developmental challenges, including the need to reduce the dependency on oil and diversify the economy, address insufficient infrastructure, build strong and effective institutions, as well as address governance issues and public financial management systems.

The chemical industry has been an integral part of the global economic landscape for many centuries. As the manufacturer of innovative, life-enhancing products and technologies, it is also central to achieving the global targets expressed in many of the United Nations' 17 Sustainable Development Goals (SDGs). Today, the chemical industry plays a crucial role in regional economies in every corner of the world— and in most sectors of those economies. The industry also produces key inputs, and enables processes, for other manufacturing activities that benefit living standards and consumers around the world. According to the report on global industry released by ''International Council of Chemical Associations (ICCA)'' global analysis finds that the chemical industry, its supply chain and payroll-induced impacts, made an estimated $5.7 trillion contribution to world GDP in 2017, and supported 120 million jobs. Its economic contribution was therefore equivalent to seven percent of the world's total GDP that year, while its employment contribution was broadly on a par with the population of Mexico.

Table 1.

GDP values for USA, Nigeria, China and Germany

Country	Nominal GDP (in trillions)	PPP Adjusted GDP (in trillions)	Annual Growth (%)	GDP Per Capita (in thousands)
USA	$20.89	$20.89	-3.6%	$63,413.5
China	$14.72	$24.27	2.3%	$10,434.8
Germany	$3.85	$4.52	-4.6%	$46,208.4
Country	Last (2020)	Previous (2019)	Reference	Unit
USA	20937	21433	Dec/20	USD Billion
Nigeria	432	448	Dec/20	USD Billion
China	14723	14280	Dec/20	USD Billion
Germany	3846	3888	Dec/20	USD Billion

Source – Trading Economics| World bank.

This page displays a table with actual values, consensus figures, forecasts, statistics and historical data charts for - GDP. This page provides values for GDP reported in several countries part of World. The table has current values for GDP, previous releases, historical highs and record lows, release frequency, reported unit and currency plus links to historical data charts.

Over time, chemical manufacturers have become an integral part of the global economy and a critical enabler of technologies that improve people's lives around the globe," said Cal Dooley, ICCA Council Secretary and President and CEO of the American Chemistry Council (ACC). "This report makes clear that the chemical industry is an irreplaceable contributor to global GDP, a source of skilled employment opportunities and a major enabler of progress in the environmental, social and economic aspects of sustainable development as reflected in the United Nation's Sustainable Development Goals." Also, that for every $1 USD generated by the chemical industry, a further $4.20 USD is generated elsewhere in the global economy.

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РЫНОК ТУРИСТСКИХ УСЛУГ И ОСОБЕННОСТИ ЕГО РАЗВИТИЯ В АЗЕРБАЙДЖАНЕ

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MARKET OF TOURISM SERVICES AND FEATURES OF ITS DEVELOPMENT IN AZERBAIJAN

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АННОТАЦИЯ

В статье излагается сущность рынка туристских услуг, дается определение этого понятия. Перечисляется условия эффективного функционирования, специфические особенности рынка туристских услуг. Доводится до сведения значение и роль туризма в решении социально-экономических проблем и экономического развития в целом. Характеризуется современное состояние международного туристского рынка, динамика развития за последние годы и влияние пандемии на рост мирового туризма. Оценивается туристский потенциал Азербайджана с целью развития национального рынка туристских услуг, анализируется состояние развития туристской отрасли, экономические показатели туристских предприятий, выявляется проблемы развития рынка туристских услуг и предлагается пути их решения.

ABSTRACT

The article describes the essence of the tourist services market, gives a definition of this concept. The conditions for effective functioning, specific features of the tourist services market are listed. The importance and role of tourism in solving socio-economic problems and economic development in general is brought to the attention. The current state of the international tourism market, the dynamics of development in recent years and the impact of the pandemic on the growth of world tourism are characterized. The tourism potential of Azerbaijan is evaluated in order to develop the national market of tourism services, the state of development of the tourism industry, the economic performance of tourism enterprises are analyzed, the problems of development of the tourism services market are identified and ways to solve them are proposed.

Ключевые слова: рынок туристских услуг, участники туристского рынка, движение продуктов и услуг, туристский потенциал Азербайджана.

Keywords: market of tourist services, participants of the tourist market, movement of products and services, tourism potential of Azerbaijan.

Введение.

Рынок туристских услуг можно характеризовать как пространство, где деньги обмениваются на туристские продукты и услуги, и наоборот, туристские продукты и услуги на деньги. Рынок туризма также рассматривается как сфера экономических отношений между туроператорами и турагентами, производителями и продавцами туристских продуктов и услуг и основными потребителями рынка-туристами.

По мнению некоторых авторов, рынок туризма можно характеризовать как совокупность экономических отношений между туристами и туроператорами. В результате этих отношений туристские продукты и услуги становятся предметом обмена между туристскими предприятиями и туристами, участвующими в рынке, в результате чего происходит движение продуктов и услуг и денежных средств,