

GLOBAL DEVELOPMENT OF THE ECO-INDUSTRY SECTOR

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ABSTRACT

Eco-industry has become an equal and recognized economic sector developing in all economic systems in the world. The main reason of its creation was the worsening state of the natural environment in the second half of the twentieth century and also the growing ecological awareness of the contemporary societies. However, the differences in its production level and the resulting regional specializations in its scope in the recent decades are determined by a number of economic, technological and institutional factors. The article discusses the functioning definitions and difficulties in their development and application, as well as the sources of the data on the size of the eco-industry sector in the world. In addition, calculations regarding the growth rate of the eco-industry sector in 1996, 2004, 2012 and 2017 and its internal global industrial structure in 2016 were presented. In the final part of the work there were given and analysed the reasons and consequences related to the explanation of the different production volumes of the eco-industry sector in various countries of the world.

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1. INTRODUCTION

Environmental technologies have gained importance in the last two decades, primarily due to the higher ecological awareness of modern societies. Their development also results from the need for effective management of the Earth's ecological resources, which is significantly linked to the category of "eco-efficiency" based on the concept of "creating more goods and services with less resource consumption and creating less waste and pollution" as defined by WBCSD. WBCSD (World Business Council for Sustainable Development) is the global organization run by managers of various levels of over 200 leading companies cooperating with each other to accelerate the transition to a pro-environmentally sustainable activity system. It helps member companies to be more successful, focusing on maximum positive impact on shareholders, environment

and society. Member companies come from all business sectors and all major economies, representing a combined income that exceeds USD 8.5 billion and 19 million employees.

The demographic and economic statistics indicate the migration of modern societies to large cities. Numerous socioeconomic forecasts underline that two to four billion more people will live on the Earth in the next 50 years.

Therefore, there will be a need to design effective ecological solutions for large human communities based on technologies included in the eco-industry sector. In the following analyzes a common OECD and Eurostat definition for eco-industry was used, in which a distinction between basic and so-called related ecological industries was realized. The main branches of eco-industry are those [identifiable] sectors in which the main or significant part of activities is undertaken to produce goods and provide services for measuring, preventing, limiting, minimizing or correcting environmental damage, as well as issues related to waste, noise and the protection of the ecosystems. (see [OECD/Eurostat, 1999](#)).

The heart of the ecological crisis is the violation of ecological balance, understood as a category for optimizing the interaction between the nature and civilization. Ecological balance in this sense is a system of relationships between the needs of society and the economy (and the ways of satisfying them) and the environment that contributes to the achievement of the adopted goals (optimal satisfaction of the given needs), while not causing changes in the environment that would threaten the sustainability of the implementation of these purposes. ([Dobrzański, 1999](#)).

H. Skolimowski's vision of ethics assumes the existence of a basic moral rule - an ecological imperative. It is a duty of an active person who is reasonably involved in the evolution process to achieve its ultimate goal - the full bloom of life on Earth. The humankind has the greatest ethical rights, but it is also morally responsible for nature as a whole, as well as for its individual components. ([Dobrzański, 1999](#)).

B. Prandecka focused on the human dependence on the use of natural resources at every level of economic development and in every society, regardless of the level of civilizational development achieved. ([Prandecka, 1991](#)).

Eco-industry is a sector of particular importance for modern economies. In addition to its main necessary role - improving and preventing from the negative changes in the natural environment - it begins to be seen as an element of building competitive advantage and a source of measurable economic benefits. It develops heterogeneously in individual regions and economies due to the mul-

titude of factors that directly or indirectly affect its development. Shaping the economic development policy requires reliable information about the process of creating eco-innovation, which may be followed by the development of the eco-industry sector.

Therefore, it is important and necessary to conduct research on the system of indicators that are helpful in identifying the factors that strengthen or inhibit the process of eco-innovation as well as the balanced and sustainable socio-economic development. (see [Araszkievicz, 2012](#)).

The research problem in the text is the hypothesis that the level of eco-industry sector is in the special relation with the indicators: level of GDP of the economies, the level ecological footprint index and the environmental stringency index. The growth of the eco-industry sector in the contemporary economies is based on the growth of GDP level and the growth of the level of the environmental stringency index and it also causes the loss of the ecological footprint index. This has been indicating the division between the economic growth measured by the GDP indicator and the condition of the natural environment measured by the ecological footprint indicator in the analysed period 1996-2016.

The rest of the article characterizes the eco-industry sector with its origins and presents the current data on the level of its sold production in the contemporary world economies. In addition, the purpose of the text is to answer the question which factors may affect the local volumes of eco-industry production and co-occur with the changes in economies with the highest dynamics of the value of eco-industrial local production in the analyzed period of 1996-2017.

2. MATERIALS AND METHODOLOGY

Eco-industry has gained a position and importance in the international economy since early 1990s, when it began to counteract strongly to the negative changes in the natural environment. At this time the process of keeping the statistics of the production values was introduced.

The interdisciplinary nature of environmental protection science required the construction of a multifaceted, theoretical foundation which it can be based on. One of its elements is economics - nowadays defined as the knowledge about the use of limited resources to create various goods and divide effects between people. ([Żylicz, 1999](#))

The concept of the green economy developed by the OECD in which the practical dimension is the eco-industry sector, is related to such categories as specific

products and services related to pro-environmental activities, investments, sectors of the economy, public procurement, as well as jobs. ([Szyja, 2015](#))

Eco-innovations are seen as such changes that consciously strive to reduce the burden on the environment. It is a kind of combination of innovation (innovation, creativity, change) with the sensitivity and ecological awareness of the organization. Eco-innovation is analyzed with demonstration of its relationships with the concept of sustainable and self-sustaining development. ([Araszkiewicz, 2012](#))

The basis for the creation of the eco-industrial sector is the category of eco-innovation, i.e. the creation of technological units aimed at protecting or improving the environment, which become products and are subject to market laws. One of the key features of eco-industry is its diversity. The scope of activities subject to the basic branches of industry for environmental protection activity ranges from technologically advanced services, for example in the field of renewable energy and air pollution control to mature and well-established applications in recycling and waste processing.

The eco-industry is a market so heterogeneous that it becomes complicated to carry out its strict characterization. The heterogeneity of eco-industry is associated with internal differences in the sub-sectors of ecological industries regarding their opportunities and ability to create inventions and develop further technological potential, as well as regarding their ability to create added value in economies.

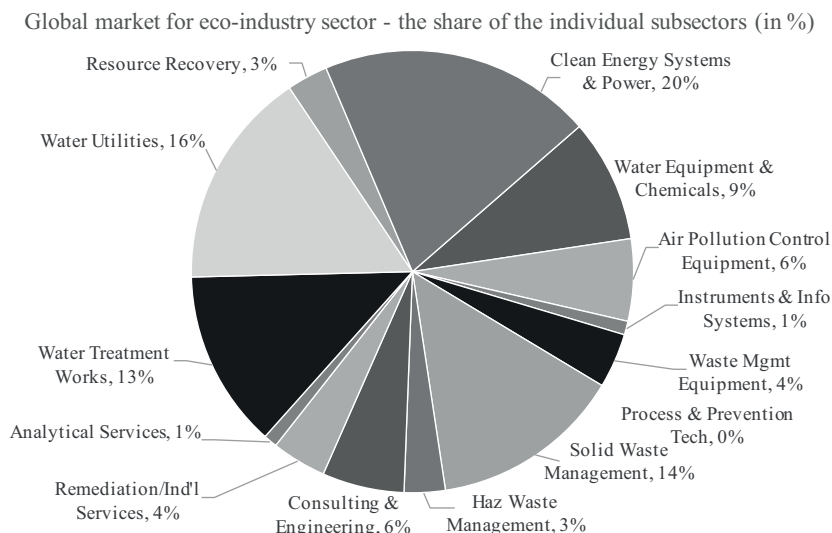
The purpose of this part of the article is to present the regional and national leader – economies in terms of the value of eco-industry's sold production as percentage of GDP . This information was organized in tabular form at 4 time points for 1996, 2004, 2012 and 2017. In the next part of the article, tools were used to analyze the dynamics of the value of sold production of eco-industry in 2004, 2012 and 2017 presented using the individual indexes of this processes. Then, a graphical representation of the share of thematic sub-areas in the total sold production of eco-industry in 2016 was also realized. The final part of the study analyzes the dynamics of the absolute value of the sold production value level of the eco-industry sector in 2016 in relation to the level of production in 1996 (in constant prices in 2016) in selected world economies. In addition, the time-parallel analysis of the change of the processes associated with and having direct or indirect impact on the size of ecoindustrial production in individual local economies was presented, i.e.

- GDP per capita indicator,
- Ecological footprint indicator,
- Environmental stringency index.

3. RESULTS OF THE ANALYSIS

Figure 1 presents the share of individual thematic sectors in the global market of eco-industry sector. In 2016, the renewable energy system sub-sector had the largest share in the eco-industry production market. Water devices, solid waste management and water treatment systems constituted slightly smaller parts. Smaller share, but also playing a large role in this sector were: hydrological equipment and chemicals, environmental engineering and consulting and the control of air pollution emissions. Other branches had the share in this sector at the level of 4 % and less, and these were: reclamation services, resource recovery, hazardous waste management, waste management equipment, IT systems as well as prevention and management of technical processes.

The data presented in Figure 1 were created by Environmental Business International, which evaluates the size of eco-industry, compiling revenues from the 30-100 largest companies in individual economies, moderating the responses of the survey, as well as the size of the unexplored sector based on estimates of the number of companies in each identified sub-category.



Environmental Business International evaluates the size of eco-industry, compiling revenues from the 30-100 largest companies in individual economies, moderating the responses of the survey, as well as the size of the unexplored sector based on estimates of the number of companies in each identified sub-category.

Figure 1. Global market for eco-industry sector production in 2016 – the share of individual sub sectors (in %). Source: author’s own calculation based on EBI Report 3000, *The Global Environmental Market. Fall 2017*, San Diego, CA, p. 20.

Eco-industry is the branch of the economy with the high potential for change in terms of its internal profit transfers, the creation of new interest groups and the activation of new determinants of its development.

At least 50% of the market of US companies providing environmental services and operating outside the home economy belongs to energy or natural resource management concerns, but their market share has decreased due to the dominance of new global corporations (from other regions) and also due to the urbanization processes and the related need to develop local municipal infrastructure, whose services have grown in importance. ([EBI Report 3000, 2017](#))

Strategy to counteract to the negative changes in the natural environment for the global development of eco-business is not as much used as it was a few years ago, or at least not to a significant extent. Due to the impact of global corporations on the global economy, many companies in the eco-industry sector have started to implement the principle of “following the customer” as the best and safest approach to increase their global reach. ([EBI Report 3000, 2017](#))

Global international entities have started to appear and provide comprehensive engineering and assembly services for environmental protection installations worldwide.

In addition, by creating the value added while striving to increase the production capacity in the economies based on natural resources many newer high-rise economies around the World contribute to the creation of new markets for pro-environmental equipment and services.

The environmental protection sector is largely based on highly specialized technological solutions and its effective functioning is embedded to strict organizational and legislative solutions of individual economies. Barriers to entry into this sector are the advanced know-how and high technology prices. The ecological clusters which have been created for several years are highly complex processes aimed at supporting entrepreneurs in eliminating barriers to the development of eco-industry.

They include many groups of stakeholders - apart from their decision-makers (i.e. small and large companies from major and related industries) - academic institutions and various supporting structures, including cluster organizations and potential investors. All these groups are of key importance for the development of the regional industry for environmental protection, i.e. eco-industry. ([European Cluster Observatory, 2013](#))

In the WIFO document dated 2006 within the global market for eco-industry two main segments were identified and analysed to measure the level of advancement of eco-industry in the global economies ([Ecorys 2009](#)):

1. The eco-industry market in developing countries where the demand for clean water and wastewater treatment accounts for the majority of this industry;
2. The market in developed countries where more advanced and highly valued products and services are offered.

The structure of dependencies within the eco-industry sector changes in individual stages of its functioning on the markets. The main clients of eco-industry products and services in the initial stages of its development in a given economy operate primarily in the public sector. Private sector demand is gradually increasing in relation to the public sector. The public sector plays a significant role in demand thanks to the system of regulations, subsidies and procurement policy in the early stages of development of the eco-industry sector. Over time, pro-environmental industries are maturing and evolving, becoming more integrated with business and conventional industries and sectors ([Ecorys, 2009](#)).

A preliminary analysis of the register of enterprises active in the eco-industry sector indicates that it is a significantly concentrated sector in which around 10% of companies account for almost 80% of its total operating revenues and turnover.

Factors determining the development of eco-industry beyond the natural trends of economic concentration lie in companies' ability of geographical extension, business expansion and reaching a critical level in order to bear the initial costs of research and development ([Ecorys, 2009](#)).

The sector of goods and services for environmental protection (eco-industry) is characterized by the extremely uneven growth in individual countries of the modern world compared to other industries and economic activities. It is determined by a significant number of determinants of its development that can be divided into economic, organizational, technological and institutional factors of individual regions and economies.

In addition, internationalization in many eco-industry subsectors takes place through trade in services and investments, not just through products trade. Also, growing pressure on the environment, evolving pro-environmental legislation, international obligations and emerging opportunities and the needs of emerging economies of the BRICs block are creating a new set of interests and connections within it.

According to Table 1 presenting the shares of individual countries and regions of the world in the global production of eco-industry in 1996, 2004, 2012 and 2017, the highest percentage in this value in 4 years analyzed was in the markets such as USA, Western Europe and Japan.

USA keeps the largest share in global eco-industrial production with a 37.5% share in 1996, which was 31% in 2017. Western Europe is in second place in the production value ranking for 1996 with the result of a 29.2% share in the eco-industrial market and recorded a slight decrease in this respect to 27% in 2017.

Japan is the third largest eco-industry market, which with 19.1% of world production

in 1996 reached 9.5% in 2017. Other Asian economies have tripled their market share in products and services for environmental protection over the period 2004-2017. Mexico increased the percentage of share in the eco-industry sector from 6% to 14% in 2017. Other Latin American economies achieved a 4% share in 2017. Canada recorded a slight increase in 2017 from 2.9% in 1996 to 3% in 2017. Australia and New Zealand as well as Central and Eastern Europe accounted for 1.6% in this market in 1996 and showed an increase to 2.9 % and 2.5% in 2017, respectively. The Middle East and Africa recorded an approximately threefold increase in their share in the eco-industry market.

The global eco-industry sector grew in 1996 at a rate of 2.2%, while in the following years the growth rate reached 5.5%, 3.5% and 3.7% in 2004-2012 and 2017 compared to the previous year of the above analysis.

Table 1. The global value of sold production of eco-industry in 1996, 2004, 2012 and 2017 - share of individual regions and economies in %.

	1996	2004	2012	2017
USA	37.50%	37.20%	36.50%	31%
Western Europe	29.20%	29.10%	27%	27%
Japan	19.10%	15.10%	11.80%	9.50%
Rest of Asia	4.20%	6.40%	10.50%	13%
Mexico	6%	7%	9%	14%
Rest of Latin America	1.60%	2.40%	2.90%	4%
Canada	2.90%	2.70%	2.60%	3%
Australia/Nz	1.60%	1.70%	1.70%	2.90%
Central/East. Europe	1.60%	2.10%	1.90%	2.5 %
Middle East	1.10%	1.60%	2.90%	4.00%
Africa	0.50%	0.90%	1.40%	1.30%

Source: author's own calculations based on EBI Report 3000, The Global Environmental Market, Fall 2017, San Diego, CA, p. 18-19.

Table 2. The dynamics of the value of sold production of eco-industry in selected economies and regions of the world in 2004, 2012 and 2017.

	2004, 1996 = 100	2012, 2004 = 100	2017, 2012 = 100
USA	0.99	0.98	1.18
Western Europe	1.00	0.93	1.13
Japan	0.79	0.78	1.11
Rest of Asia	1.52	1.64	1.44
Mexico	1.23	1.22	1.21
Rest of Latin America	1.46	1.21	1.16
Canada	0.93	0.94	1.18
Australia/Nz	1.11	0.97	1.08
Central/East. Europe	1.35	0.91	1.08
Middle East	1.39	1,87	1,49

Source: author's own calculations based on EBI Report 3000, *The Global Environmental Market*, Fall 2017, San Diego, CA, p. 18-19 and Eurostat, GDP deflator, https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=sdg_08_10&language=en [20-03-2019].

Table 2. presents the dynamics of the global sold production of eco-industry sector in 2004, 2012 and 2017 according to which the high value of eco-industry growth in the analyzed years was noticed for Asia (excluding Japan), Mexico, Latin America (without Mexico), the Middle East and Africa. A significant increase (by 35%) was also recorded in 2004 compared to 1996 in the eco-industry sector in Central and Eastern Europe, while in 2017, compared to 2012, eco-industry in the US also grew at a high rate of 18%.

The highest growth rate of the eco-industry sector was recorded for Asia (excluding Japan), Middle East and African economies at three time points analyzed and also for Latin America (excluding Mexico).

Arundel and Kemp stated that measuring eco-innovation, and thus the production level of the eco-industry sector contributes to the comparative analysis of countries, determining the level of the process of disconnecting socio-economic growth and environmental degradation (so-called decoupling) (Kanerva, 2009).

As in Europe, an important driver of the development of eco-industry and especially of some of its sub-segments around the world are rising energy costs and the growing demand for energy efficiency (Ecorys, 2009).

However, according to J. Horbach, the determinants of eco-innovation form Tyree main groups: demand, supply and external factors related to public institutions and their development policy (Horbach, 2005).

Kuznets's theory assumes that the negative environmental impact of individual economies increases to a certain level of the national income achieved after which it begins to fall. This is due to the transfer of resources towards new higher needs realized by the consumption of luxury goods, which include a clean natural environment ([Kuznets, 1955](#)).

The next section analyzes the selected economic indicators that may directly or indirectly affect the level of ecoindustrial production (as mentioned in the literature above) in selected global economies - i.e. the level of GDP per capita, the level of the ecological footprint and the level of strictness of pro-environmental regulations (environmental protection stringency indicator) in the individual economies of the world.

Table 3. The dynamics of the value of eco-industry production in 2016 (1996 = 100) and its determinants in selected global economies

	The dynamics of the value of eco-industry production in 2016, 1996 = 100	GDP per capita in 2016, 1996 = 100	Ecological footprint 2016, 1996 = 100	Environmental stringency index average level for 2014-2017	Environmental stringency index – place in the ranking
USA	2.43	1.34	0.810	5.5	8
Western Europe - Germany	2.05	1.32	0.828	6.14	2
Japan	1.06	1.17	0.804	5.59	7
Rest of Asia – China	3.85	5.16	1.895	3.8	40
Mexico	8.26	1.26	0.897	3.61	39
Rest of America - Brazil	8.93	1.27	0.903	4.09	29
Canada	2.07	1.36	0.895	5.39	15
Australia/Nz	5.10	1.43	0.846	5.02	12
Central/East. Europe= Poland	3.54	2.18	0.936	4.16	26

Source: own calculations based on EBI Report 3000, *The Global Environmental Market*, Fall 2017, San Diego, CA, p. 18-19, World Bank 2019 <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD> [12-06-2019], Ecological Footprint 2019, <https://www.footprintnetwork.org/our-work/ecological-footprint/> [12-06-2019].

GDP per capita is a measure of economic activity and also serves as an indicator of the development of material standards of living in the country. However, this is a limited measure of economic well-being. GDP does not include the majority of unpaid household work, nor does it take into account the negative effects of economic activities, such as environmental degradation. The data comes from

World Bank statistics and are ordered in the 2010 fixed price formula in US dollars.

The ecological footprint indicator and its individual components measure utilization and future opportunities to use ecological resources. Based on around 15,000 subcomponents in the form of national statistical data on an annual basis, the ecological footprint indicator is calculated for over 200 economies, territories and regions from 1961 to the present. Data on the ecological footprint accounts are related to, among others food and agriculture organizations, the United Nations goods trade database and the United Nations Department of Statistics, as well as the International Energy Agency. Supplementary data sources include research in peer-reviewed scientific journals and thematic collections. Of the countries, territories and regions analyzed in the ecological footprint accounts, as many as 150 had a population of over one million and are based on complete and reliable data sets. For most of them, the Global Footprint Network is able to provide a time series of both the ecological footprint and the so-called biological capacity

OECD environmental policy stringency indicator (EPS) is a measure of the rigor of environmental policy for a given country and a tool comparable internationally. The sharpness is defined as the extent to which environmental policies define explicit or hidden price for pollutant or environmentally harmful behavior. The index ranges from 0 (not strict) to 6 (highest stringency). The index includes 28 OECD countries and 6 BRIICS countries for the period 1990-2012 and years 2014 and 2017 developed in consultation with Environmental Business International. The index is based on the degree of rigor of 14 environmental policy instruments, mainly related to the climate protection and the atmospheric pollution

In accordance with Table 3, the highest production dynamics in the eco-industry sector in 2016 compared to 1996 was achieved by Brazil (8.93). Mexico came in the second place with a dynamics of 8.26. At the same time, Brazil and Mexico had similar dynamics of GDP per capita - 1.27 and 1.26% respectively and decreasing dynamics of the ecological footprint indicator at 0.903 and 0.897. The dynamics of the environmental stringency index in 2017 was on the level of 3.61 for Mexico and 4.09 for Brazil in comparison to 1996.

Moderate dynamics in the value of eco-industry production in 2016 in relation to 1996 and in comparison to other analyzed economies was recorded for Australia with New Zealand, China and Poland. China achieved over five times bigger economic growth compared to 1996, while Australia with New Zealand showed dynamics at 1.43 and Poland - 2.18. The ecological footprint indicator increased in China at this time as much as 89.5%, while in Australia with New Zealand

and in Poland it decreased by 15.4% and 6.4%, respectively. In addition, China was in the last place in the ranking of the environmental stringency index in comparison to other analyzed economies with Australia and New Zealand on the high 12th place.

USA, Germany, Japan and Canada showed moderate growth in the scope of eco-industry production compared to other analyzed regions. The GDP per capita dynamics in these economies ranged from 1.17 in Japan to 1.36 in Canada, and the ecological footprint index in these countries declined compared to 1996. In these economies, the environmental stringency index also occupies a high position in the ranking taking into account the majority of global economies.

According to the material presented above, it becomes possible to formulate conclusion about a visible separation of the economic development process (here measured by the GDP per capita indicator) from the introduction of significant negative changes to the natural environment in modern economies. This is evidenced by the fact that the presented countries (excluding China), realizing economic growth of several or several dozen percent in 2016 compared to 1996, simultaneously reduced the ecological footprint indicator expressing the degree of changes introduced to the natural environment as a result of human economic activity.

Only China, due to its more than five times bigger economic growth in 2016 compared to the base year 1996, showed a strong increase in the ecological footprint index. It should be emphasized that China was at that time at the low place in the ranking in terms of the regulatory index of environmental stringency in their economy. This fact could be associated with the insignificant role of the eco-industry sector in the process of separating the economic development process from the creation of the negative changes in the environment, despite the significant dynamics in the production of the eco-industry sector in the Chinese economy.

Less dynamic economic growth in the analyzed period in Mexico and Brazil was associated with a decreasing indicator of the ecological footprint. This could be due to a much larger parallel increase in the production of environmental technologies (eco-industry) compared to China, which took place in these economies with a similar level of severity of environmental stringency index that was in force at the same time in China.

Eco-industrial industries in the United States, Germany, Japan and other countries not only compete with each other in their markets, but also in the third markets, especially in developing countries. Competition in the eco-industry market

is in effect a triple race between three largest market shareholders. However, some Asian countries have strengthened enough in niche markets recently and are achieving good export results, while China has even become the market leader in some eco-industry segments, e.g. solar cells ([Ecorys, 2009](#)). The growth of the eco-industry sector is related also with the the growing level of the environmental stringency index in the above presented research.

While the EU focuses on pollution control, waste management and integrated production's chain management, Japan and the United States are focusing on developing innovative equipment enabling them to take a leading position in the field of hybrid cars as well as green design. In addition, emerging countries such as China have been particularly successful in developing advanced environmental technology subsectors through foreign direct investment ([European Cluster Observatory, 2013](#)).

Currently, fast-growing economies such as China and, to a lesser extent, India, use public funds to develop eco-industries. China is seriously exposed to the effects of environmental pollution because of the rapid economic growth and made political commitments to combat negative environmental changes ([ECORYS Netherlands and IDEA Consult, 2009](#)).

4. SUMMARY AND CONCLUSIONS

The eco-industry sector is developing all over the world due to its potential to counteract to the adverse changes occurring in the natural environment. In addition, it has become a source of economic profit creation, i.e. a high share in building the national GDP or raising the competitiveness of the industry and entire economic systems.

Developing economies, especially from the region of Asia as well as Latin and South

America feel entitled to pollute the environment in order to achieve a high standard of living for their inhabitants, as it was done in the previous decades by the largest and richest world economies. To keep the environment in good condition and to achieve the productive efficiency, both the richest, developing and emerging economies form native ecoindustries sectors.

World economies have begun to compete in the market in this sector, which has resulted in the exchange of know-how, foreign direct investment and the growth in the field of eco-industrial export. Many economies recorded double-digit growth in this sector over the period 1996-2017. All these aspects contribute to

the development of new strategies for companies to enter and stay in the national and global eco-industry sector, as well as the patent creation systems and the production and dissemination of technologies for environmental protection. The eco-industry sector is beginning to play the role of a kind of catalyst for separating the economic development process from introducing negative changes into the natural environment, which was analyzed on the example of rapidly developing global economies, that at the same time show their significant share in the creation of the value of global production of the eco-industry sector.

Conflict of interests

The author declares there is no conflict of interest.

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ГЛОБАЛНИ РАЗВОЈ СЕКТОРА ЕКО-ИНДУСТРИЈЕ

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САЖЕТАК

Еко-индустрија је постала равноправан и признат економски сектор који се развија у свим економским системима у свијету. Главни разлог његовог настанка било је погоршање стања природног окружења у другој половини 20. вијека, као и растућа еколошка свијест савремених друштава. Међутим, разлике у производњи и обим проистеклих регионалних специјализација у посљедњим деценијама одређени су бројним економским, технолошким и институционалним факторима. Рад разматра дефиниције функционисања и потешкоће у њиховом развоју и примјени, као и изворе података о величини сектора еко-индустрије у свијету. Поред тога, представљени су прорачуни у вези са стопом раста сектора еко-индустрије у годинама 1996, 2004, 2012. и 2017. и унутрашња структура глобалних индустрија 2016. године.

У завршном дијелу рада дати су и анализирани разлози и посљедице који се односе на објашњење различитих обима производње сектора еко-индустрије у различитим земљама свијета.

Кључне ријечи: еко-индустрија, зелена економија, одрживи развој, зелени раст.