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Sustainable Development in Asian countries – Indicator-based Approach

Zrównoważony rozwój krajów azjatyckich – podejście wskaźnikowe

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Abstract

The study discusses problems related to the concept of sustainable development in Asian countries in the period 2002-2015. The introduction presents the occurring transformations, involving the majority of Asian countries, taking into account their diversity and contrasts. In addition, the goals allowing the implementation of sustainable development concept in Asia-Pacific region are specified. In the next part of the article the indicators of sustainable development, selected for the analysis and covering all key areas, i.e. social, economic, environmental, spatial, institutional-political are characterised. A synthetic development measure (SDM) was applied as the research method, and the data for calculations were collected from the World Bank sources. The research results, illustrating the position of individual countries against the level of sustainable development concept implementation in the analysed years, remain the crucial part of the study. Within the framework of conclusions it can be stated that the situation of Asian countries, in terms of sustainable development, requires improvement. In turn, a noticeable and gradual progress refers to the majority of analysed countries. The best results were recorded in the following countries: Singapore, Japan, South Korea, Qatar, United Arab Emirates and Malaysia. The least favourable situation was observed in Yemen, Iraq, Burma, Uzbekistan, Cambodia, Oman and Iran.

Key words: Asia, sustainable development, linear ordering, economy, society, environment

Streszczenie

W opracowaniu poruszona została problematyka odnosząca się do koncepcji zrównoważonego rozwoju w krajach azjatyckich w latach 2002-2015. W ramach wprowadzenia nawiązano do zachodzących przemian, które są udziałem większości krajów Azji, uwzględniających ich zróżnicowanie i kontrasty. Ponadto wyszczególniono cele, które umożliwiają implementację koncepcji zrównoważonego rozwoju w regionie Azji i Pacyfiku. W kolejnej części artykułu scharakteryzowano wskaźniki zrównoważonego rozwoju wybrane do analizy, obejmujące wszystkie kluczowe obszary, tj. społeczny, ekonomiczny, środowiskowy, przestrzenny, instytucjonalno-polityczny. Zastosowaną metodą badawczą był syntetyczny miernik rozwoju (SMR), dane do obliczeń pozyskane zostały ze źródeł Banku Światowego. Najważniejszą część opracowania stanowią wyniki badań, pokazujące pozycję poszczególnych krajów względem poziomu implementacji koncepcji zrównoważonego rozwoju w badanych latach. W ramach wniosków można stwierdzić, że sytuacja krajów azjatyckich względem rozwoju zrównoważonego wymaga poprawy. Zauważalny jest natomiast sukcesywny progres, będąca udziałem większości krajów. W grupie krajów, które wypadły najkorzystniej znalazły się: Singapur, Japonia, Korea Południowa, Katar, Zjednoczone Emiraty Arabskie, Malezja. Najmniej korzystnie sytuacja przedstawia się w Jemenie, Iraku, Birmie, Uzbekistanie, Kambodży, Omanie, Iranie.

Słowa kluczowe: Azja, zrównoważony rozwój, porządkowanie liniowe, gospodarka, społeczeństwo, środowisko

1. Introduction

In recent years the region of Asia has experienced dynamic transformations, which have predominantly covered the economy sector, but also referred to demographics, institutional, environmental or cultural spheres. An assumption can be adopted that in the context of the aforementioned changes it is Asia, which apart from South America, is going to play an increasingly important role in the global scale due to its significant growth potential. In other words, Asia has returned to the centre of the world's attention, just as it used to be for centuries, before the dominance of the Western world (Batabyal and Nijkamp, 2016). This huge continent, the largest in the world, is also the arena of extensive contrasts, development disparities, areas of great wealth and extreme poverty. Diversification remains both its strength and weakness, depending on the adopted assessment criteria (*Environmental Governance ...*, 2002).

As a result of the occurring structural changes, covering the majority of Asian countries, a gradual shift from a rural society, with its dominant agricultural function, to an urban one with its prevailing industrial function is observed (Zhou, 2001). Based on the available forecasts, one can assume that this phenomenon will be intensified in the decades to come. It has been adopted that sustainable development is the correct direction for socio-economic development of continental agglomerations. Moreover, along the path heading towards economic growth the requirement of avoiding environmental damage, destroying natural resources, underestimating the importance of social fabric and culture sector may never be neglected (Prasad, 2017; Raszkowski, 2014; *Urban Environmental Governance ...*, 2005; Starr, 2013). In Asian countries competitive advantages are developed increasingly frequently, as they derive from supporting socio-economic activity by modern development factors, high quality human capital, revitalization of public space adjusted to contemporary requirements, also covering environmental aspects (Raszkowski and Głuszczuk, 2015, 2017; Sutton, 2010; Mitchell, 2001, Wang *et al.*, 2013).

The awareness of the importance of sustainable development principles' implementation and environmental responsibility depend on the level of an individual country development and the carried out public policies, education level taking into account environmental concerns and the heritage of future generations (Judson, 2010, 2017; Archer, 2017, Ramanathan *et al*., 2017; Mori, 2013). Among numerous goals, to be achieved as a result of implementing the sustainable development concept in Asia-Pacific region, the following can also be included: counteracting poverty and combating hunger, improving health, higher education quality, gender equality, access to clean water and sanitation, ecological energy sources, acceptable working conditions and the level of economic growth. Moreover, the listed factors are extended by: the pursuit towards innovative industry and infrastructure, the reduction of social inequalities (Kohl, 2002), urban and social development based on the fundamental principles of sustainable development, responsible consumption and production, the improvement of natural climate, aquatic environment, life on land, the pursuit of peace and justice as well as cooperation to accomplish all of the aforementioned objectives (*Asia-Pacific Sustainable Development ...*, 2017; *Achieving the Sustainable Development ...*, 2017; Choi, 2018; Servaes, 2017).

The study aims at presenting and analysing the position of individual Asian countries regarding the level of sustainable development concept implementation in the years 2002-2015, thus the study covers a relatively long period of time. The selection of indicators used in the conducted analyses and the period under consideration were determined by the availability of reliable public statistics. The chosen indicators remain in line with the European approach towards measuring the level of sustainable development. They also cover all areas responsible for the achievement of sustainable development goals in Asian countries (*Asia-Pacific Sustainable Development ...*, 2017). A synthetic development measure (SDM) was used as the research method to assess the implementation of sustainable development standards in Asian countries, and the data for calculations were collected from the World Bank sources. The applied research method should be approached as one of the proposals for measuring sustainable development, as its advantage is both measurability and comparability.

2. Research methodology, sustainable development indicators of Asian countries

Indicators can be perceived as a useful accessory for evaluation, communication and decision making. In other terms, they represent quantitative tools synthesizing and simplifying data relevant in assessing specific phenomena. The indicators of sustainable development can be defined as a statistical measure that gives an indication on the sustainability of social, environmental and economic development. In the opinion of some researchers, indicators represent the basic instrument for monitoring sustainable development, as they show this concept of development in a rational and measurable manner (*Handbook of National Accounting…,* 2003; Borys, 2005, 2010; Palmer, 1998; Geniaux *et al.*, 2009).

The indicators selected for the presented analysis allow analysing progress in the discussed development concept implementation with reference to territorial units, in this case at the national level of Asian countries, in accordance with the approach adopted by the European Union (*Sustainable development in the European Union ...*, 2015; 2017) in measuring the level of sustainable development.

Table 1. The indicators of sustainable development selected for the analysis with regard to Asian countries, characteristics, source: World Development Indicators; *Indicators of Sustainable Development…*, *Defining a Sustainable Transport…*

SDI theme	Indicator	The importance of an indicator for sustainable development
Socio-economic development	GDP per capita (current US$)	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars.
	Foreign direct investment, net inflows (BoP, current US$)	Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. Data are in current U.S. dollars.
	Unemployment, total (% of total labour force)	Unemployment refers to the share of the labour force that is without work but available for and seeking employment.
Sustainable production and consumption	CO_2 emissions from solid fuel consumption (kt)	Carbon dioxide emissions from solid fuel consumption refer mainly to emissions from use of coal as an energy source.
	Access to electricity (% of population)	Access to electricity is the percentage of population with access to electricity. Electrification data are collected from industry, national surveys and international sources.
	Fertilizer consumption (kilograms per hectare of arable land)	Fertilizer consumption measures the quantity of plant nutrients used per unit of arable land. Fertilizer products cover nitrogenous, potash, and phosphate fertilizers (including ground rock phosphate). Traditional nutrients--animal and plant manures--are not included. For the purpose of data dissemination, FAO has adopted the concept of a calendar year (January to December). Some countries compile fertilizer data on a calendar year basis, while others are on a split-year basis. Arable land includes land defined by the FAO as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded.
Social inclusion	Depth of the food deficit (kilocalories per person per day)	The depth of the food deficit indicates how many calories would be needed to lift the undernourished from their status, everything else being constant. The average intensity of food deprivation of the undernourished, estimated as the difference between the average dietary energy requirement and the average dietary energy consumption of the undernourished population (food-deprived), is multiplied by the number of undernourished to provide an estimate of the total food deficit in the country, which is then normalized by the total population.
	Individuals using the Internet (% of population)	Internet users are individuals who have used the Internet (from any location) in the last 3 months. The Internet can be used via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.
	Unemployment, youth total (% of total labour force ages 15-24) (modelled ILO estimate)	Youth unemployment refers to the share of the labour force ages 15-24 without work but available for and seeking employment.
Demographic changes	Birth rate, crude (per 1,000 people)	Crude birth rate indicates the number of live births occurring during the year, per 1,000 population estimated at midyear. Subtracting the crude death rate from the crude birth rate provides the rate of natural increase, which is equal to the rate of population change in the absence of migration.
	Population ages 65 and above (% of total)	Population ages 65 and above as a percentage of the total population. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.
	Age dependency ratio (% of working-age population)	Age dependency ratio is the ratio of dependents--people younger than 15 or older than 64--to the working-age population--those ages 15-64. Data are shown as the proportion of dependents per 100 working-age population.
Public health	Life expectancy at birth, total	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
	Mortality rate, infant (per 1,000 live births)	Infant mortality rate is the number of infants dying before reaching one year of age, per 1,000 live births in a given year.
	Health expenditure, total (% of GDP)	Total health expenditure is the sum of public and private health expenditure. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation.
Climate change and Energy	CO_2 emissions (kg per 2010 US$ of GDP)	Carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring.
	Renewable energy consumption (% of total final energy consumption)	Renewable energy consumption (% of total final energy consumption)
	Total greenhouse gas emissions (kt of CO_2 equivalent)	Total greenhouse gas emissions in kt of CO_2 equivalent are composed of CO_2 totals excluding short-cycle biomass burning (such as agricultural waste burning and Savannah burning) but including other biomass burning (such as forest fires, post-burn decay, peat fires and decay of drained peatlands), all anthropogenic CH_4 sources, N_2O sources and F-gases (HFCs, PFCs and SF_6).

SDI theme	Indicator	The importance of an indicator for sustainable development
Sustainable transport	CO_2 emissions from transport (% of total fuel combustion)	CO_2 emissions from transport contain emissions from the combustion of fuel for all transport activity, regardless of the sector, except for international marine bunkers and international aviation. This includes domestic aviation, domestic navigation, road, rail and pipeline transport, and corresponds to IPCC Source/Sink Category 1 A 3. In addition, the IEA data are not collected in a way that allows the autoproducer consumption to be split by specific end-use and therefore, autoproducers are shown as a separate item (Unallocated Autoproducers).
	Fossil fuel energy consumption (% of total)	Fossil fuel comprises coal, oil, petroleum, and natural gas products.
	Air transport, passengers carried	Air freight is the volume of freight, express, and diplomatic bags carried on each flight stage (operation of an aircraft from take-off to its next landing), measured in metric tons times kilometres travelled.
	Air transport, freight (million ton-km)	Air freight is the volume of freight, express, and diplomatic bags carried on each flight stage (operation of an aircraft from take-off to its next landing), measured in metric tons times kilometres travelled.
Natural resources	Forest area (% of land area)	Forest area is land under natural or planted stands of trees of at least 5 meters in situ, whether productive or not, and excludes tree stands in agricultural production systems (for example, in fruit plantations and agroforestry systems) and trees in urban parks and gardens.
	Forest rents (% of GDP)	Forest rents are roundwood harvest times the product of average prices and a region-specific rental rate.
	People using basic drinking water services (% of population)	The percentage of people using at least basic water services. This indicator encompasses both people using basic water services as well as those using safely managed water services. Basic drinking water services are defined as drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip. Improved water sources include piped water, boreholes or tubewells, protected dug wells, protected springs, and packaged or delivered water.
	Total natural resources rents (% of GDP)	Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.
Global partnership	Import value index (2000 = 100)	Import value indexes are the current value of imports (c.i.f.) converted to U.S. dollars and expressed as a percentage of the average for the base period (2000). UNCTAD's import value indexes are reported for most economies. For selected economies for which UNCTAD does not publish data, the import value indexes are derived from import volume indexes (line 73) and corresponding unit value indexes of imports (line 75) in the IMF's International Financial Statistics.
	Imports of goods and services (% of GDP)	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.
	Improved water source (% of population with access)	Access to an improved water source refers to the percentage of the population using an improved drinking water source. The improved drinking water source includes piped water on premises (piped household water connection located inside the user's dwelling, plot or yard), and other improved drinking water sources (public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, and rainwater collection).
Good governance	Voice and Accountability	This indicator reflects the extent to which a given country population is capable of participating in the election of their authorities. Additionally, freedom of speech and expression level, the functioning of free media or the freedom of association are taken into account. The particular elements of good governance are extremely important in an overall perception of sustainable development concept implementation.
	Rule of Law	Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, proper-ty rights, the police, and the courts, as well as the likelihood of crime and violence.
	Control of Corruption	Control of corruption capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests.

In this case, the reference to the European perspective on the perception of sustainable development is intentional. Such solution provides the basis for putting forward conclusions and potential comparisons of Asian countries against the European ones. In addition, despite many differences between the two continents, the concept of sustainable development is characterised by universalism, hence its basic values are unchanged in the global dimension. Moreover, the basic goals of sustainable development remain identical. The selected indicators are characterised in Tab. 1.

The discussed approach towards analysing the concept of sustainable development implementation is based on a general assessment of individual elements, the fulfilment of which results in full implementation of the concept. At this point it should be emphasized that the choice of variables for the study was driven by the concern to include each of the spheres that co-create sustainable development, i.e. social, economic, environmental, spatial, and institutional-political one. In the process of assessing the level of sustainable development standards implementation, it is crucial to specify the list of indicators representing the selected, significant aspects related to each of the aforementioned spheres of sustainable development. Moreover, the indicators should be characterised and described in terms of their im-

Table 2. The set of indicators included in Asian countries ordering from the perspective of implementing sustainable development concept, source: authors' compilation based on the World Development Indicators

SDI theme	Indicator	Indicator type	Reference value
Socio-economic development	GDP per capita (current thousand US$)	stimulant	88,56
	Foreign direct investment, net inflows (BoP, current billion US$)	stimulant	2900928,43
	Unemployment, total (% of total labour force)	destimulant	0,1
Sustainable production and consumption	CO_2 emissions from solid fuel consumption (kt)	destimulant	0
	Access to electricity (% of population)	stimulant	100
	Fertilizer consumption (kilograms per hectare of arable land)	destimulant	0
Social inclusion	Depth of the food deficit (kilocalories per person per day)	destimulant	0
	Individuals using the Internet (% of population)	stimulant	93,48
	Unemployment, youth total (% of total labour force ages 15-24) (modelled ILO estimate)	destimulant	0,17
Demographic changes	Birth rate, crude (per 1,000 people)	stimulant	38,04
	Population ages 65 and above (% of total)	destimulant	0,75
	Age dependency ratio (% of working-age population)	destimulant	16,45
Public health	Life expectancy at birth, total (years)	stimulant	83,84
	Mortality rate, infant (per 1,000 live births)	destimulant	2,0
	Health expenditure, total (% of GDP)	stimulant	87,60
Climate change and Energy	CO_2 emissions (kg per 2010 US$ of GDP)	destimulant	0,10
	Renewable energy consumption (% of total final energy consumption)	stimulant	91,31
	Total greenhouse gas emissions (kt of CO_2 equivalent)	destimulant	6460,24
Sustainable transport	CO_2 emissions from transport (% of total fuel combustion)	destimulant	4,78
	Fossil fuel energy consumption (% of total)	destimulant	8,62
	Air transport, passengers carried (persons)	stimulant	436183969
	Air transport, freight (million ton-km)	stimulant	232960,3
Natural resources	Forest area (% of land area)	stimulant	68,48
	Forest rents (% of GDP)	destimulant	0
	People using basic drinking water services (% of population)	stimulant	100
	Total natural resources rents (% of GDP)	destimulant	0,00
Global partnership	Import value index (2000 = 100)	stimulant	1211,35
	Imports of goods and services (% of GDP)	stimulant	210,41
	Improved water source (% of population with access)	stimulant	100
Good governance	Voice and Accountability	stimulant	1,11
	Rule of Law	stimulant	1,82
	Control of Corruption	stimulant	2,32

portance for sustainable development (Borys, 2011; Pawłowski, 2008).

It is also important to define the quantitative objectives to be achieved, in order to indicate the extent of sustainable development concept implementation. Defining such objectives depends, however, on the nature of each variable. The following variables can be distinguished: stimulants, destimulants and nominants.

The method of synthetic development measure (SDM) was used to assess the implementation of sustainable development standards in Asian countries. It provided the basis to develop the ranking and to establish the position of individual countries. SDM is applied in linear ordering of objects characterised by many diagnostic variables, later replaced by one diagnostic value (Jajuga *et al*., 2003).

The SDM development procedure is carried out in several stages and has been presented in detail in the study discussing the level of sustainable development concept implementation in the Russian Federation (see: Bartniczak and Raszkowski, 2017).

3. Sustainable development of Asian countries in the years 2002-2015

The values of the synthetic development measure (SDM), in the years 2002-2015, were estimated based on the set of indicators listed in Tab. 2. The Table also presents the nature (interpretation) of indicators and the coordinates (values) of the reference unit common for the years 2002-2015.

The analysis covered the situation in terms of implementing sustainable development standards in Asian

Table 3. SDM value, positions of particular countries, changes in positions in the years 2002-2015, source: authors' estimations based on the World Development Indicators

Country	2002		2003			2004			2005			2006			2007			2008			2009			2010			2011			2012			2013			2014			2015		
	SDM	position	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change	SDM	position	change
Saudi Arabia	0,3847	19	0,3842	20	1	0,3865	19	-1	0,3859	21	2	0,3902	22	1	0,4071	17	-5	0,4125	17	0	0,4212	16	-1	0,4229	15	-1	0,4183	18	3	0,4296	16	-2	0,4339	15	-1	0,4389	17	2	0,4466	12	-5
Armenia	0,3679	23	0,3742	22	-1	0,3731	23	1	0,3754	23	0	0,3769	24	1	0,3806	24	0	0,386	24	0	0,3842	26	2	0,3911	26	0	0,3967	26	0	0,4028	24	-2	0,4071	24	0	0,4079	26	2	0,4015	29	3
Azerbaijan	0,3327	31	0,3468	29	-2	0,3559	26	-3	0,3586	28	2	0,3575	31	3	0,3657	31	0	0,3697	29	-2	0,3781	27	-2	0,3853	27	0	0,3938	27	0	0,3986	27	0	0,4057	25	-2	0,4059	28	3	0,4088	27	-1
Bahrain	0,4097	11	0,4175	10	-1	0,4217	9	-1	0,4214	10	1	0,414	15	5	0,4262	14	-1	0,4366	10	-4	0,4294	14	4	0,4303	14	0	0,4363	13	-1	0,4387	14	1	0,4417	14	0	0,4398	16	2	0,4322	18	2
Bangladesh	0,3656	24	0,3656	24	0	0,3675	25	1	0,3742	24	-1	0,3779	23	-1	0,3853	23	0	0,3921	23	0	0,3915	23	0	0,3951	24	1	0,4015	24	0	0,4015	26	2	0,4053	26	0	0,4111	25	-1	0,4113	26	1
Burma	0,2919	34	0,2962	34	0	0,2981	34	0	0,3132	34	0	0,3175	34	0	0,3218	34	0	0,3331	34	0	0,3425	34	0	0,3509	34	0	0,3655	33	-1	0,3826	30	-3	0,3953	29	-1	0,3992	29	0	0,4154	23	-6
China	0,3972	15	0,4029	15	0	0,4086	15	0	0,4149	14	-1	0,4177	14	0	0,4283	13	-1	0,4361	12	-1	0,4352	9	-3	0,452	9	0	0,4572	8	-1	0,4595	7	-1	0,4623	7	0	0,4644	8	1	0,4539	10	2
Philippines	0,3976	14	0,3906	17	3	0,388	18	1	0,4033	16	-2	0,3968	18	2	0,3995	20	2	0,397	22	2	0,3966	22	0	0,408	21	-1	0,4171	19	-2	0,4249	18	-1	0,4324	16	-2	0,4399	15	-1	0,442	15	0
Georgia	0,3906	16	0,4076	14	-2	0,4155	14	0	0,4189	12	-2	0,4278	9	-3	0,4314	10	1	0,4338	13	3	0,4298	13	0	0,4	11	-2	0,447	9	-2	0,4536	9	0	0,459	9	0	0,4659	7	-2	0,4629	8	1
India	0,4023	13	0,4128	13	0	0,4185	11	-2	0,4212	11	0	0,4274	11	0	0,4302	11	0	0,437	9	-2	0,4342	11	2	0,4362	12	1	0,4457	10	-2	0,4483	11	1	0,4522	11	0	0,457	10	-1	0,4659	6	-4
Indonesia	0,3681	22	0,3736	23	1	0,3801	21	-2	0,386	20	-1	0,3917	20	0	0,4035	19	-1	0,4128	16	-3	0,4072	18	2	0,4216	17	-1	0,4318	15	-2	0,4405	13	-2	0,4423	13	0	0,4487	11	-2	0,448	11	0
Iraq	0,2832	35	0,2668	36	1	0,265	35	-1	0,2922	35	0	0,29	35	0	0,2941	35	0	0,3038	35	0	0,3196	35	0	0,3227	35	0	0,3212	35	0	0,3288	35	0	0,337	35	0	0,3406	35	0	0,3436	35	0
Iran	0,3588	25	0,3633	25	0	0,3678	24	-1	0,3642	25	1	0,3625	27	2	0,3664	30	3	0,3678	31	1	0,37	31	0	0,3708	32	1	0,374	31	-1	0,378	32	1	0,3801	33	1	0,3817	33	0	0,383	32	-1
Israel	0,4265	5	0,4264	5	0	0,4299	6	1	0,4338	6	0	0,4396	6	0	0,4477	5	-1	0,4554	5	0	0,4482	7	2	0,4529	7	0	0,4584	7	0	0,4589	8	1	0,4595	8	0	0,4587	9	1	0,4593	9	0
Japan	0,4665	1	0,4686	1	0	0,4752	1	0	0,4783	1	0	0,4823	1	0	0,4795	2	1	0,4883	1	-1	0,4796	2	1	0,4862	2	0	0,4875	3	1	0,4844	3	0	0,4849	3	0	0,48	3	0	0,4758	4	1
Jordan	0,3825	20	0,3867	18	-2	0,3973	16	-2	0,3978	17	1	0,4011	16	-1	0,4048	18	2	0,4087	18	0	0,4063	19	1	0,4086	20	1	0,4144	21	1	0,4168	22	1	0,4173	22	0	0,4215	21	-1	0,4176	22	1
Cambodia	0,322	33	0,3293	32	-1	0,3935	32	0	0,4472	31	-1	0,3597	30	-1	0,3671	29	-1	0,369	30	1	0,3724	29	-1	0,3728	30	1	0,3837	29	-1	0,3951	28	-1	0,4034	27	-1	0,4151	24	-3	0,4414	24	0
Qatar	0,4062	12	0,4137	12	0	0,4163	13	1	0,4282	9	-4	0,4385	7	-2	0,4436	8	1	0,4518	6	-2	0,455	4	-2	0,4525	8	4	0,4415	12	4	0,4471	12	0	0,4569	10	-2	0,4477	12	2	0,4437	14	2

Country	2002		2003			2004			2005			2006			2007			2008			2009			2010			2011			2012			2013			2014			2015		
	SD M	position	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change	SD M	position	change
Kazakhstan	0,340	30	0,345	30	0	0,350	30	0	0,358	29	-1	0,361	28	-1	0,372	25	-3	0,381	25	0	0,387	25	0	0,393	25	0	0,403	23	-2	0,401	23	0	0,413	23	0	0,416	23	0	0,413	25	2
Kirgizstan	0,368	21	0,376	21	0	0,378	22	1	0,382	22	0	0,393	19	-3	0,395	22	3	0,401	21	-1	0,397	21	0	0,406	22	1	0,412	22	0	0,418	21	-1	0,422	21	0	0,437	18	-3	0,421	20	2
South Korea	0,459	3	0,463	2	-1	0,468	2	0	0,472	2	0	0,474	2	0	0,481	1	-1	0,483	2	1	0,478	3	1	0,484	3	0	0,490	2	-1	0,490	2	0	0,489	2	0	0,490	2	0	0,484	2	0
Kuwait	0,416	8	0,420	8	0	0,420	10	2	0,414	15	5	0,418	13	-2	0,429	12	-1	0,432	14	2	0,434	10	-4	0,432	13	3	0,423	17	4	0,426	19	2	0,426	19	0	0,424	20	1	0,431	19	-1
Lebanon	0,386	18	0,386	19	1	0,394	17	-2	0,395	18	1	0,390	21	3	0,396	21	0	0,402	20	-1	0,404	20	0	0,412	19	-1	0,416	20	1	0,421	20	0	0,422	20	0	0,419	22	2	0,418	21	-1
Malesia	0,438	4	0,434	4	0	0,448	4	0	0,448	4	0	0,445	4	0	0,475	6	2	0,457	8	2	0,448	8	0	0,454	5	-3	0,460	6	1	0,464	6	0	0,463	6	0	0,466	6	0	0,463	7	1
Mongolia	0,354	26	0,356	26	0	0,353	27	1	0,360	26	-1	0,371	25	-1	0,369	28	3	0,375	27	-1	0,388	24	-3	0,398	23	-1	0,401	25	2	0,401	25	0	0,397	28	3	0,406	27	-1	0,407	28	1
Nepal	0,388	17	0,391	16	-1	0,385	20	4	0,393	19	-1	0,400	17	-2	0,407	16	-1	0,407	19	3	0,409	17	-2	0,418	18	1	0,424	16	-2	0,427	17	1	0,432	17	0	0,432	14	-3	0,438	17	3
Oman	0,346	28	0,342	31	3	0,350	29	-2	0,358	32	3	0,338	32	0	0,350	32	0	0,363	32	0	0,367	32	0	0,371	31	-1	0,369	32	1	0,377	33	1	0,385	31	-2	0,388	31	0	0,382	33	2
Pakistan	0,347	27	0,350	27	0	0,350	28	1	0,358	27	-1	0,368	26	-1	0,369	26	0	0,374	28	2	0,371	30	2	0,376	29	-1	0,378	30	1	0,380	31	1	0,384	32	1	0,389	30	-2	0,399	31	1
Singapore	0,465	2	0,455	3	1	0,457	3	0	0,458	3	0	0,453	3	0	0,461	3	0	0,457	4	1	0,481	1	-3	0,494	1	0	0,497	1	0	0,503	1	0	0,504	1	0	0,506	1	0	0,499	1	0
Sri Lanka	0,413	9	0,414	11	2	0,416	12	1	0,418	13	1	0,421	12	-1	0,422	15	3	0,426	15	0	0,421	15	0	0,422	16	1	0,432	14	-2	0,437	15	1	0,430	18	3	0,435	19	1	0,440	16	-3
Tadzhikistan	0,343	29	0,349	28	-1	0,348	31	3	0,352	30	-1	0,359	29	-1	0,369	27	-2	0,377	26	-1	0,377	28	2	0,379	28	0	0,389	28	0	0,389	29	1	0,391	30	1	0,388	32	2	0,392	30	-2
Thailand	0,421	7	0,422	7	0	0,426	7	0	0,431	7	0	0,427	10	3	0,431	9	-1	0,436	11	2	0,431	12	1	0,440	10	-2	0,444	11	1	0,450	10	-1	0,451	12	2	0,445	13	1	0,444	13	0
Uzbekistan	0,324	32	0,327	33	1	0,332	33	0	0,329	33	0	0,333	33	0	0,344	33	0	0,352	33	0	0,352	33	0	0,353	33	0	0,354	34	1	0,363	34	0	0,371	34	0	0,378	34	0	0,376	34	0
Vietnam	0,412	10	0,418	9	-1	0,422	8	-1	0,430	8	0	0,433	8	0	0,449	7	-1	0,450	7	0	0,449	6	-1	0,453	6	0	0,463	5	-1	0,469	4	-1	0,475	4	0	0,478	4	0	0,481	3	-1
Yemen	0,253	36	0,268	35	-1	0,263	36	1	0,268	36	0	0,277	36	0	0,292	36	0	0,299	36	0	0,299	36	0	0,297	36	0	0,299	36	0	0,308	36	0	0,309	36	0	0,307	36	0	0,307	36	0
UAE	0,426	6	0,425	6	0	0,433	5	-1	0,437	5	1	0,439	5	0	0,450	4	-1	0,457	3	-1	0,452	5	2	0,456	4	1	0,464	4	0	0,468	5	1	0,471	5	1	0,475	5	0	0,472	5	0

Table 4. Synthetic measures for the distance from reference value in the years 2002-2015, Source: authors' estimations based on the World Development Indicators

Specification	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Median	0,3856	0,3867	0,3872	0,3946	0,3951	0,4041	0,408	0,4068	0,415	0,4177	0,4239	0,4283	0,4364	0,4318
Min. value	0,2531	0,2668	0,2632	0,2684	0,2779	0,2924	0,2996	0,2995	0,2979	0,2996	0,3087	0,3094	0,3075	0,3074
Max. value	0,4665	0,4686	0,4752	0,4783	0,4823	0,4811	0,4883	0,4817	0,4948	0,4979	0,5032	0,5042	0,5063	0,4996
Difference quotient	0,2134	0,2018	0,212	0,2099	0,2043	0,1888	0,1887	0,1822	0,197	0,1983	0,1945	0,1947	0,1989	0,1922
Coefficient of variation (%)	12,85%	12,55%	12,83%	12,16%	11,83%	11,44%	11,00%	10,42%	10,59%	10,51%	9,99%	9,68%	9,51%	9,26%
Arithmetic mean	0,3795	0,3827	0,3862	0,3907	0,3939	0,4005	0,406	0,407	0,4124	0,4172	0,4221	0,4255	0,4283	0,4276
Standard deviation	0,0488	0,048	0,0496	0,0475	0,0466	0,0458	0,0446	0,0424	0,0437	0,0439	0,0422	0,0412	0,0407	0,0396
Pearson's linear correlation coefficient (analysed year against the previous year)	-	0,9913	0,9964	0,9925	0,994	0,9954	0,9968	0,9891	0,9947	0,9925	0,9965	0,9962	0,9927	0,9902

countries. There are 48 independent countries in Asia: Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, Brunei, Cambodia, China, Cyprus, Georgia, India, Indonesia, Iran, Iraq, Israel, Japan, Jordan, Kazakhstan, North Korea, South Korea, Kuwait, Kyrgyzstan, Laos, Lebanon, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Oman, Pakistan, Philippines, Qatar, Russia, Saudi Arabia, Singapore, Sri Lanka, Syria, Tajikistan, Thailand, Timor-Leste, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan, Vietnam, Yemen. Cyprus, Russia and Turkey were excluded from the analysis as the more *European* countries, i.e. strongly influenced by the European continent in social, cultural and economic spheres. In the case of Russia and Turkey the aspect of partly European geographical location is also involved, whereas Cyprus is the European Union Member State. Additionally, in relation to aggregate measure it was decided to exclude North Korea because of extensive data gaps and the dictatorial regime ruling this country. Due to the significant data gaps in the process of aggregate measure construction the following countries were not covered by the analysis either: Afghanistan, Bhutan, Brunei, Maldives, Syria, Timor, Turkmenistan, Laos. In case of these countries, including North Korea, the analysis covered single indicators, for which sufficient data were available. The conclusions drawn from analysing individual indicators are presented later in the study.

Therefore, ultimately the aggregate measure was developed for 36 Asian countries. Every effort was made to ensure the most reliable results. The above mentioned exclusions of a few countries were justified (e.g. unavailable data) and should not distort the overall picture of the sustainable development concept implementation in Asian countries.

The values of statistical measures, helpful in interpreting the situation of individual countries and the occurring changes, were calculated for the particular years. (Table 4).

The situation of individual countries, in terms of the implementation of sustainable development in particular years presented small spatial diversification, confirmed by the low value of the coefficient of variation. This diversification was also reduced in the analysed years, as shown by the declining value of this indicator. In each subsequent year the countries were approaching the reference value, as evidenced by an ongoing increase in the median value and the minimum value, as well as the increase in the maximum value. A very high value of the Person's linear correlation coefficient indicates slight changes in the ranking positions of particular countries in a given year against the previous one. In the situation when such change occurred, it was mostly by one or two positions (down or up).

In 2002 the situation in 23 countries was described as unfavourable, whereas in the others as moderate. In 2003 and 2004 the situation in 21 countries was identified as unfavourable and in 15 as moderate. In 2005 the situation in 20 countries was unfavourable and in 16 moderate. In 2006, in 19 unfavourable, and in 17 moderate. In 2007, in 17 unfavourable, and in 19 moderate. In 2008, in 15 unfavourable, and in 21 moderate. In 2009, in 16 unfavourable, and in 20 moderate. In 2010, in 14 unfavourable, and in 22 moderate. In 2011, in 11 unfavourable, and in 25 moderate. In 2012, in 10 countries unfavourable, and in 26 moderate. In 2013, in 9 countries unfavourable, and in 27 moderate. In 2014, in 8 countries unfavourable, and in 28 moderate. In 2015, the situation in 7 countries was described as unfavourable, and in 29 as moderate (Fig. 1). It shows that each subsequent year the number of countries, in which the situation regarding the implementation of sustainable development standards can be described as moderate is systematically increasing.

In all analysed years, excluding 2003, Yemen was ranked at the lowest position. In 2003 this position was taken by Iraq, which in the other years was ranked last but one. In 2002-2006 and 2008 Japan was ranked the first. In 2007 South Korea was the leader, whereas in 2009-2015 Singapore was ranked at the very top.

Figure 1. The ordering of Asian countries in terms of reference value in the years 2002-2015, source: authors' estimations based on the World Development Indicators

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Unfavourable situation	Yemen	Iraq	Yemen	Yemen	Yemen	Yemen	Yemen	Yemen	Yemen	Yemen	Yemen	Yemen	Yemen	Yemen	
	Iraq	Yemen	Iraq	Iraq	Iraq	Iraq	Iraq	Iraq	Iraq	Iraq	Iraq	Iraq	Iraq	Iraq	
	Burma	Burma	Burma	Burma	Burma	Burma	Burma	Burma	Burma	Uzbekistan	Uzbekistan	Uzbekistan	Uzbekistan	Uzbekistan	
	Cambodia	Uzbekistan	Uzbekistan	Uzbekistan	Uzbekistan	Uzbekistan	Uzbekistan	Uzbekistan	Uzbekistan	Burma	Oman	Iran	Iran	Oman	
	Uzbekistan	Cambodia	Cambodia	Oman	Oman	Oman	Oman	Oman	Iran	Oman	Iran	Pakistan	Tadzhikistan	Iran	
	Azerbaijan	Oman	Tadzhikistan	Cambodia	Azerbaijan	Azerbaijan	Iran	Iran	Oman	Iran	Pakistan	Oman	Oman	Pakistan	
	Kazakhstan	Kazakhstan	Kazakhstan	Tadzhikistan	Cambodia	Iran	Cambodia	Pakistan	Cambodia	Pakistan	Burma	Tadzhikistan	Pakistan	Tadzhikistan	
	Tadzhikistan	Azerbaijan	Oman	Kazakhstan	Tadzhikistan	Cambodia	Azerbaijan	Cambodia	Pakistan	Cambodia	Tadzhikistan	Burma	Burma	Armenia	Moderate situation
	Oman	Tadzhikistan	Pakistan	Azerbaijan	Kazakhstan	Mongolia	Pakistan	Tadzhikistan	Tadzhikistan	Tadzhikistan	Cambodia	Mongolia	Azerbaijan	Mongolia	
	Pakistan	Pakistan	Mongolia	Pakistan	Iran	Tadzhikistan	Mongolia	Azerbaijan	Azerbaijan	Azerbaijan	Azerbaijan	Cambodia	Mongolia	Azerbaijan	
	Mongolia	Mongolia	Azerbaijan	Mongolia	Pakistan	Pakistan	Tadzhikistan	Armenia	Armenia	Armenia	Bangladesh	Bangladesh	Armenia	Bangladesh	
	Iran	Iran	Bangladesh	Iran	Mongolia	Kazakhstan	Kazakhstan	Kazakhstan	Kazakhstan	Mongolia	Mongolia	Azerbaijan	Bangladesh	Kazakhstan	
	Bangladesh	Bangladesh	Iran	Bangladesh	Armenia	Armenia	Armenia	Mongolia	Bangladesh	Bangladesh	Armenia	Armenia	Cambodia	Cambodia	
	Armenia	Indonesia	Armenia	Armenia	Bangladesh	Bangladesh	Bangladesh	Bangladesh	Mongolia	Kazakhstan	Kazakhstan	Kazakhstan	Kazakhstan	Burma	
	Indonesia	Armenia	Kirgizstan	Kirgizstan	Saudi Arabia	Kirgizstan	Philippines	Philippines	Kirgizstan	Kirgizstan	Jordan	Jordan	Lebanon	Jordan	
	Kirgizstan	Kirgizstan	Indonesia	Saudi Arabia	Lebanon	Lebanon	Kirgizstan	Kirgizstan	Philippines	Jordan	Kirgizstan	Kirgizstan	Jordan	Lebanon	
	Jordan	Saudi Arabia	Nepal	Indonesia	Indonesia	Philippines	Lebanon	Lebanon	Jordan	Lebanon	Lebanon	Lebanon	Kuwait	Kirgizstan	
	Saudi Arabia	Lebanon	Saudi Arabia	Nepal	Kirgizstan	Indonesia	Nepal	Jordan	Lebanon	Philippines	Kuwait	Kuwait	Sri Lanka	Kuwait	
	Lebanon	Jordan	Philippines	Lebanon	Philippines	Jordan	Jordan	Indonesia	Nepal	Saudi Arabia	Philippines	Sri Lanka	Kirgizstan	Bahrain	
	Nepal	Philippines	Lebanon	Jordan	Nepal	Saudi Arabia	Saudi Arabia	Nepal	Indonesia	Kuwait	Nepal	Nepal	Saudi Arabia	Nepal	
	Georgia	Nepal	Jordan	Philippines	Jordan	Nepal	Indonesia	Saudi Arabia	Sri Lanka	Nepal	Saudi Arabia	Philippines	Bahrain	Sri Lanka	
	China	China	China	Kuwait	Bahrain	Sri Lanka	Sri Lanka	Sri Lanka	Saudi Arabia	Indonesia	Sri Lanka	Saudi Arabia	Philippines	Philippines	
	Philippines	Georgia	Georgia	China	China	Bahrain	Kuwait	Bahrain	Bahrain	Sri Lanka	Bahrain	Bahrain	Nepal	Qatar	
	India	India	Qatar	Sri Lanka	Kuwait	China	Georgia	Georgia	Kuwait	Bahrain	Indonesia	Indonesia	Thailand	Thailand	
	Qatar	Qatar	Sri Lanka	Georgia	Sri Lanka	Kuwait	China	Thailand	India	Qatar	Qatar	Thailand	Qatar	Saudi Arabia	
	Bahrain	Sri Lanka	India	India	India	India	Thailand	India	Georgia	Thailand	India	India	Indonesia	Indonesia	
	Vietnam	Bahrain	Kuwait	Bahrain	Thailand	Georgia	Bahrain	Kuwait	Thailand	India	Thailand	Qatar	India	China	
	Sri Lanka	Vietnam	Bahrain	Qatar	Georgia	Thailand	India	China	China	Georgia	Georgia	Georgia	Israel	Israel	
	Kuwait	Kuwait	Vietnam	Vietnam	Vietnam	Qatar	Malesia	Malesia	Qatar	China	Israel	Israel	China	Georgia	
	Thailand	Thailand	Thailand	Thailand	Qatar	Vietnam	Vietnam	Israel	Israel	Israel	China	China	Georgia	Malesia	
	UAE	UAE	Israel	Israel	Israel	Malesia	Qatar	Vietnam	Vietnam	Malesia	Malesia	Malesia	Malesia	India	
	Israel	Israel	UAE	UAE	UAE	Israel	Israel	UAE	Malesia	Vietnam	UAE	UAE	UAE	UAE	
	Malesia	Malesia	Malesia	Malesia	Malesia	UAE	Singapore	Qatar	UAE	UAE	Vietnam	Vietnam	Vietnam	Japan	
	South Korea	Singapore	Singapore	Singapore	Singapore	Singapore	UAE	South Korea		Japan	Japan	Japan	Japan	Vietnam	
	Singapore	South Korea	South Korea	South Korea	South Korea	Japan	South Korea	Japan	Japan	South Korea	South Korea	South Korea	South Korea	South Korea	
	Japan	Japan	Japan	Japan	Japan	South Korea	Japan	Singapore	Singapore	Singapore	Singapore	Singapore	Singapore	Singapore	

4. Discussion, the analysis of individual factors

The analysis of the values of individual indicators selected for the study allows putting forward the following detailed conclusions. The value of GDP per capita (current thousand US$) shows extensive differences between individual countries. The phenomenon raising concerns and pointing to the increasing differences between countries is the growing distance between the country featuring the lowest and the highest indicator value. The lowest GDP per capita, in almost all analysed years, was recorded in Afghanistan (in 2002 and in Burma in 2005). In turn, the highest level was recorded in Japan in 2002-2003, and in subsequent years in Qatar. These two countries also show positive results against the general situation in the implementation of sustainable development standards. Obviously, the level of GDP per capita, social wealth and the level of sustainable development cannot be referred to as equal, however, the aspect of the state's economic growth cannot be overestimated.

Foreign direct investment, net inflows (BoP, current thousand US$) also shows high diversification. It results from the fact that this indicator shows a negative value in several countries (Kyrgyzstan 2002-2015, Saudi Arabia 2002-2004, Bahrain 2015, Indonesia 2003, Iraq 2002, Qatar 2013, Kuwait 2003 and 2008, Nepal 2002, 2004, 2006, Mongolia 2014, Oman 2015, Yemen 2003, 2005, 2011-2015, North Korea. China, in turn, has recorded the highest indicator value in each of the analysed years. Foreign direct investment, apart from its strictly economic aspect is also important in terms of the penetration of developmental models, management systems and organizational-institutional solutions. The analysis of Unemployment, total (% of total labour force) indicates average diversification in each of the analysed years. The lowest unemployment level was recorded in Burma, Cambodia and Qatar (except for the years 2002-2006). In these countries the unemployment rate did not exceed 1%, whereas the highest one was recorded in Oman, Iraq and Yemen. In 2005-2015 the maximum unemployment rate presented the level of 18%-19% and in 2003-2004 it was over 26%.

CO2 emissions from solid fuel consumption (kt) show minimal diversification (at the level of 3%-5% in particular years). In each of the analysed years the highest indicator value was recorded in China. In the case of several countries – Saudi Arabia, Bahrain, Iraq, Qatar, Kuwait, Oman, Brunei, Maldives, Timor, Turkmenistan – the indicator value is 0. It is, in fact, beneficial for sustainable development, but it rather results from the existing economic conditions in these countries than from an excessive care for the natural environment. The systematically declining, each subsequent year, diversification of Asian countries regarding Access to electricity (% of population) is a positive phenomenon. The lowest percentage of population with access to electricity was recorded in Afghanistan, North Korea and Indonesia. In 11 countries, 100% of the population had access to electricity throughout the entire analysed period: Saudi Arabia, Bahrain, Israel, Japan, Qatar, South Korea, Kuwait, Oman, Singapore, United Arab Emirates and Brunei. There occurs a simple convergence between access to electricity and the level of sustainable development, the higher the access, the more sustainable the development. This phenomenon is influenced by the dependence of civilization development on access to electricity. Fertilizer consumption (kilograms per hectare of arable land) is highly diversified. In the analysed years the lowest value was recorded in Kazakhstan, whereas the highest in 2002 in Bahrain, in 2003-2009 in Singapore, and in 2010-2015 in Qatar.

The indicator characterizing the Depth of the food deficit (kilocalories per person per day) can be used to analyse the problem of hunger. Asian countries are highly diversified and this disproportion continues to increase. In the analysed period the indicator value was 0 only in five countries: Bahrain, Israel, Japan, Qatar and Singapore. At the same time, these countries show a relatively high level of sustainable development among Asian countries. However, the highest indicator value was achieved in 2002-2004 in Burma, in 2005-2008 in Tadzhikistan, and in the years to follow in North Korea.

Individuals using the Internet (% of population) - the indicator showing a significant downward trend regarding diversification, which should be considered positive. Year by year, the minimum and maximum values were also growing. North Korea is the only country with 0 indicator value. However, in the case of this country it predominantly results from ideological factors. In turn, the largest share of individuals using the Internet in 2002-2011 was recorded in South Korea, and in subsequent years in Bahrain.

The value of Unemployment, youth total (% of total labour force ages 15-24) (modelled ILO estimate) shows minor diversification. In each of the analysed years its value fell below 2%. In 2002 the minimum value was recorded in Afghanistan, in 2003-2005 in Burma and next in Cambodia. The maximum value was recorded in Oman (2002, 2005-2015) and in Iraq (2003-2004). The differences between individual countries in Birth rate, crude (per 1,000 people) were gradually decreasing. The minimum and maximum values were also in decline year by year. In the entire analysed period the minimum value was recorded in Japan, whereas the maximum one in 2002-2011 in Afghanistan, and in the subsequent years in Timor.

The share of Population ages 65 and above (% of total) was systematically growing year by year. However, this increase was small. It amounted to less than 1 percentage point in the period under analysis. The United Arab Emirates presented the lowest share of population ages 65 and above, amounting to 1%, in each analysed year. In turn, the largest share of such population was recorded in Japan. It is also

worth emphasizing that the discussed share was steadily increasing in this country. In 2002 it was 18%, and in 2015 over 26%.

Positive processes can be observed regarding Age dependency ratio (% of working-age population). Year by year its average value presented a continuous decline. In 2002 it was approx. 62% and by 2005 it went down by almost 10 percentage points. The diversification level between individual countries can be identified as average. In the years 2002-2010 and 2014-2015 the lowest value was recorded in the United Arab Emirates (ranging from 17% to 30%). In 2011-2013 the lowest ratio of 16% was observed in Qatar. In Afghanistan and Timor age dependence ratio reached approx. 100%.

Afghanistan was characterised by the lowest Life expectancy at birth, total, in each of the studied years. Life expectancy at birth in this country ranged from 55,6 years of age in 2002 up to 63,3 in 2015. An increasing life expectancy at birth is the only positive factor recorded for Afghanistan. The country with the longest life expectancy at birth is Japan. The indicator value ranges from 81,6 years of age in 2002 up to 83,8 in 2015. The systematically increasing average value of life expectancy at birth, total, is a positive phenomenon. It was 69,4 years of age in 2002 and 73,0 in 2015. It should be highlighted that year by year the differences between individual countries are being reduced. It is confirmed by the value of the coefficient of variation – 8,37% in 2002 and 6,68% in 2015. The tendency towards systematic extension of life expectancy at birth was actually recorded in all countries. The exceptions were: Syria in 2007-2014, Iraq in 2003-2007 and Georgia in 2007-2009. This situation can be, to some extent, explained by the ongoing armed conflicts in these countries.

The studied countries are highly diversified in terms of Mortality rate, infant (per 1,000 live births. It is shown by the high value of the coefficient of variation ranging from 83,4% in 2002 to 63,7% in 2015. However, the continuously decreasing diversification ratio remains a positive phenomenon. The lowest indicator value was achieved in Singapore in 2002-2013, and in subsequent years in Japan. Its value ranged from 2,7 to 2,0. The worst situation was recorded in Afghanistan (indicator value 86,1-83,6) in the years 2002-2003. In the years to follow the worst situation occurred in Pakistan, where the indicator value ranged from 81,7 in 2004 to 65,7 in 2015. A positive phenomenon, observed in all countries, was the decreasing average indicator value, from 34,9 in 2002 down to 20,45 in 2015. The level of Health expenditure, total (% of GDP) showed the occurrence of average disparities between individual countries. It was confirmed by the value of the coefficient of variation ranging between 48% and slightly below 65%. On average, Asian countries were spending less than 5% of GDP on health care in the period under analysis. This level was recorded in each of the analysed years. The highest share, in all analysed years, was recorded in Kuwait – it ranged from 13,9% to almost 18,8%. The lowest – approx. 1% – occurred in Cambodia and Timor. At this point, taking into account the experience from other regions of the world, it should be observed, that not just the level of health expenditure proves its quality, but the effectiveness of the funds spent is equally important.

Asian countries are highly diversified in terms of CO2 emissions (kg per 2010 US$ of GDP) and this diversification was increasing in the analysed period. The countries with the lowest emissions against GDP are Singapore, Afghanistan and Laos. However, the highest value in each of the analysed years was recorded in Oman. An extensive diversification can also be observed in terms of the Renewable energy consumption (% of total final energy consumption). The largest share of renewable energy consumption was recorded in 2002-2011 in Bhutan, and next in Laos. In turn, the renewable energy sources were not used at all in Bahrain, Qatar, Kuwait and Oman. Total greenhouse gas emissions (kt of CO_2 equivalent) also show large diversification. In addition, this diversification increased in the analysed period. The minimum indicator value, in each of the analysed years, was recorded in Timor, whereas the maximum one in China. Average diversification is shown by the value of CO_2 emissions from transport (% of total fuel combustion). The minimum value was recorded in North Korea, whereas the maximum one in Cambodia. The indicator value of Fossil fuel energy consumption (% of total) presents high diversification in individual countries. This diversification was, however, slightly reduced. The minimum value was recorded in Nepal, and the maximum one, reaching 100%, in Bahrain, Qatar, Kuwait, Oman and Brunei.

An extensive diversification occurs regarding Air transport, passengers carried. In 2002-2009 the minimum value was recorded in Bhutan, in 2010-2012 in North Korea and next in India. In 2002-2003 Japan recorded the maximum value, and in subsequent years China. In turn, only slight diversification was observed in individual countries in terms of Air transport, freight (million ton-km). The maximum indicator value was reached in Saudi Arabia, whereas the minimum one in the Maldives (2002-2009), and in the following years in Yemen. It should be noted that air transport is changing the world (reducing communication, business, culture distance etc.) and its development can be expected in the years to come.

Due to the specificity of Asian continent, covered by deserts, tundra, taiga and also tropical forests, individual countries are highly diversified in terms of Forest area (% of land area). Qatar is the country with no forests at all, whereas 75% of Brunei and Laos are covered with forests. In the entire analysed period, the average forest area was at the level of

over 23%. In the case of European countries the indicator value is relatively strongly connected with the implementation of sustainable development. In Asia, due to the above mentioned continental diversity, such simple generalizations cannot be made. A very extensive diversification can also be observed in the Forest rents (% of GDP). The minimum value was recorded in the United Arab Emirates and Qatar and the maximum one in Laos, Burma and Bhutan.

Having analysed the value of People using basic drinking water services (% of population), several positive phenomena can be observed. The minimum value doubled in the analysed period. The average value was systematically increasing year by year. In turn, the diversification, which was small in the entire analysed period, presented a downward trend. In each of the analysed years the minimum value was recorded in Afghanistan. However, the doubled percentage of people using basic drinking water services (from 30% in 2002 to approx. 63% in 2015) is a positive phenomenon. The indicator value was 100% only in four countries throughout the entire analysed period, i.e. Israel, Qatar, Kuwait and Singapore. Asian countries are highly diversified in terms of Total natural resources rents (% of GDP). The continuous decline of both average and maximum value is a positive trend. The minimum value was recorded in Singapore, and the maximum one in Iraq (2002-2005), Turkmenistan (2006-2007), Saudi Arabia (2008), Mongolia (2009) and Kuwait (2010-2015).

Import value index (2000 = 100) shows a small, however, steadily increasing diversification between individual countries in the analysed years. The minimum value occurred in Iraq (2002-2003), Burma (2004-2007), Philippines (2008-2012) and Syria (2013-2015). The maximum value was recorded in Afghanistan (2002), Azerbaijan (2003-2005), Mongolia (2006, 200-2011, 2015) and Georgia (2007-2008, 2012-2014). The systematically decreasing average diversification is visible in Imports of goods and services (% of GDP). The minimum value was recorded in Burma in 2002-2012, in Japan in 2013 and next in Pakistan. The maximum value was observed in Timor (2002) and in subsequent years in Singapore. The analysis of Improved water source (% of population with access) confirms positive trends. The diversification between individual countries is small and presents a continuous decline. The minimum and average values show an upward trend year by year. The minimum value was recorded in Afghanistan (2002-2013) and in Yemen (2014-2015). The indicator value was 100% in the following four countries throughout the entire analysed period: Bahrain, Israel, Japan and Singapore.

The best situation, in terms of the value of Voice and Accountability, in the whole analysed period occurred in Japan, whereas the worst in North Korea. Also in the case of the Rule of Law the worst situation was observed in North Korea and the best one in Singapore. The highest value of Control of Corruption was true for Singapore. The worst situation was recorded in Iraq (2002), Burma (2003-2007, 2009-2011), Afghanistan (2008, 2013), Turkmenistan (2012), Yemen (2014) and Syria (2015).

5. Conclusions

In general, it can be concluded that the overall situation of Asian countries is still far from ideal regarding the implementation of sustainable development standards. Due to the fact that the continent remains extensively diversified in many respects (economic, social, cultural spheres, access to natural resources, location rent, historical determinants, including colonial past etc.), some of the countries have been recording increasingly satisfactory results, e.g. Singapore, Japan, South Korea, Qatar, United Arab Emirates, Malaysia, Israel, Vietnam. At the other end there are: Yemen, Iraq, Burma, Uzbekistan, Cambodia, Oman, Iran, Tajikistan, Azerbaijan and Pakistan. In these countries the scale of elements to be improved is significantly larger.

In turn, the gradually increasing group of countries characterised by a moderate situation against the group featuring an unfavourable situation is a clearly positive phenomenon, advancing over time. Suffice it to say that in 2002, 23 out of 36 analysed countries were included in the group presenting an unfavourable situation regarding the implementation of sustainable development concept. In 2015 the respective proportion was 7 to 29, which proves a significant progress and a good future perspective. It should, however, be borne in mind that in spite of the favourable trend none of the analysed countries were included in the group featuring either a favourable or highly favourable situation. In turn, no country presented a very unfavourable situation. The discussed situation has created space for constructing and strengthening the development based on a sustainable approach, therefore public policies, implemented by national governments, seem to be playing a crucial role in this respect.

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