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Integration of Sustainable Development Indicators into Sustainable Development Programmes

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The article deals with some theoretical aspects of society sustainable development management and discusses issues of integration of sustainable development indicators into preparation of sustainable development strategies.

The article discuses economic growth and its impact of environmental pollution and income inequality. The idea of economic growth positive impact on sustainable development was elaborated by proposing implementation of environmental and social policies into economic development strategies. The Kuznets classical and environmental curves were discussed based on recent publications analyzing the relationship between income and pollution as well income and inequality.

Using theoretical approach the main requirements for sustainable economic development management system were formed. Indicators approach for the development of sustainable energy programmes was elaborated. Indicators simplify information on complex phenomena and reduce information to the most important elements. Indicators also allow targeted data and information searches and the assessment of conditions and trends in relation to goals and targets. Sustainable development indicators are grouped according the main dimensions of sustainable development: economic, social and environmental. 5 types of indicators are widely recognized: pressure indicators refer to direct stress factors, which human activities place on the environment. State indicators refer to the current conditions. Response indicators refer to the measurable aspects of policies developed by the society. Driving force indicators refer to socio-economic or socio-cultural factors driving activities that increase or mitigate the pressure on the environment. Impact indicators refer to effects caused by environmental conditions. Sometimes it is difficult to distinguish between state and impact indicators.

Three principles in application of indicators approach were discussed and the proposals for the integration of indicators into national planning systems were developed based on the structure of National sustainable development strategy for Lithuania. Application of indicators of sustainable energy development in national energy strategy illustrated theretofore described approach.

The main principles of sustainable development are integrated in National sustainable development strategy. This strategy includes 6 branches of economy (transport, industry, energy, agriculture, household, tourism), 4 environmental sectors (air, water, biodiversity and waste), 4 main social aspects (employment, poverty and health, education, cultural identity) and regional development issues. All these economic, social, environmental and regional development issues are presented in close integrity.

Indicators for some branches and environmental sectors were proposed in the strategy but interlinkages and the consistent framework of indicators for monitoring progress towards all goals established in the strategy wasn't performed. The article presents new approach for the selection of appropriate indicators and integration of them into sustainable development strategies. This approach is based on idea that all the main sustainable development indicators are related to each other through the chain of impacts. Economic indicators have direct impact on social and environmental indicators therefore the main response actions or new policies should be implemented on the main driving force indicators of economic dimension.

Keywords: *sustainable development, sustainable energy, sustainable development indicators*

Introduction

Though the essence of the sustainable development concept is clear enough, the exact interpretation and definition of sustainable development has caused strong discussions. The sustainable development concept merges two urgent goals: a) to ensure appropriate, secure, wealthy life for all people – its is the goal of development, and b) to live and work in accordance with bio-physical limits of the environment – it is the goal of sustainability (Čiegis, 2002). These goals might seem contradictory, but some relative data on environmental quality and natural resources utilisation and income per person, allows us to make a presumption that environmental quality improves and income inequality diminishes with the increase of income per capita level. This interrelation between the national income per person and emissions of pollutants is called the environmental Kuznets curve (Kuznets, 1955), analogous to traditional curve, proposed by Simon Kuznets (Figure 1), which demonstrates a similar relationship between actual income per person and income inequality (Čiegis, Čiegis, 2002). This relationship proves that economic, ecological of sustainable development can be achieved together by implementing effective management of sustainable development (Stokey, 1998). So regulation in market system is necessary because there is no feedback mechanism to guarantee, unregulated market economy would never exceed its ecological capacity of the environment (Daly, 1991).

There are a lot of discussions around Kuznets curves. Some scientists proves that airborne emissions (especially SO_2 emissions) for some countries follows Kuznets curves without any deviations (Stren, 2002; Stern & Comon,

2001). Some scientists argue that the shape of Kuznets curve is quite different for different countries and that such regularity does not exists (Coondo & Dinda, 2002; Selden &n Song, 1995). Though there is no firm agreement among scientists regarding Kuznets curves there is obvious relationship between income and demand for environmental quality (McConnell, 1997). The increased income of population makes it possible to introduce environmental and social policies having significant impact on pollution reduction, energy saving and poverty alleviation.

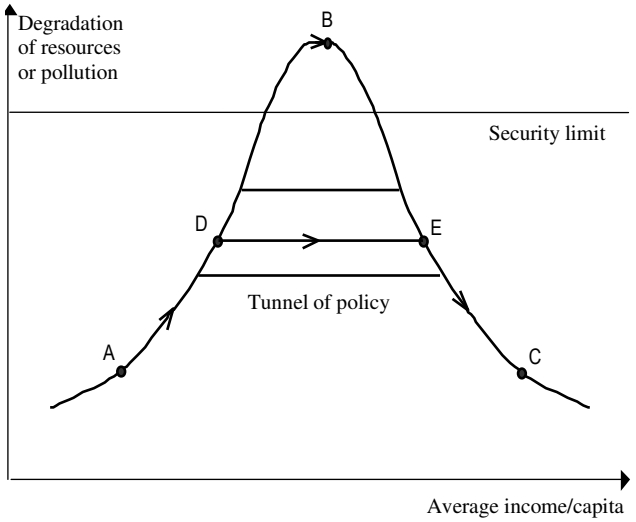

Figure 1. Kuznets ecological curve

Based on commonly agreed four dimensions of sustainable development the same society sustainable development management approaches can be distinguished: a) economic, b) ecological, c) social, e) institutional. The economic sustainability management approach is based upon Solow's (1986) amplified theory on capital substitutability and Hicks-Lindahl concept of maximum income, which can be acquired by saving essential essential capital resources for the benefit of future generations (Hicks, 1965). The ecological approach of sustainability management is based on Holling's (1973) concept that the primary task of economic development is to determine the natural systems limits for various economic activities. The social sustainability management approach reflects the interface between development and dominating social systems, considering equality among different generations and ensuring qualitative growth striving towards perfection, harmony and deep self-cognition (Daly, 1990). Summing up the society sustainable development management can be considered as attempt to replace accents from material values, as the main goal of human existence, to the human needs, non-material, balanced and co-ordinate (Schumacher, 1975).

It is clear that for the management of the sustainable development of all dimensions there must be presented their own goals: for environmental – safeguarding the environment; social – strengthening social coherence/justice; economic – satisfying material needs; institutional – participation/co-decision. It is, however, not enough to define targets for the four dimensions of sustainability. Therefore if we want to manager sustainability, the society is in charge of formulating sustainability objectives, which should be constantly review and assessed. Sustainable development indicators can successfully measure the degree of objective implementation. Indicators should also reflect the interlinkages between social, economic and environmental targets of sustainable development (Spangenberg, Pfalh, Deller, 1999). For example Kuznets curves shows important interlinkages between economic and social and economic and environmental dimensions of sustainable development.

Indicator development is always a two-way process. Indicators are not only desired from policy aims, but they also help to concretise and mould them. Indicators are used in the decision-making mechanism of sustainable development and in the plan of its implementation. The big attention must be given to the modeling of sustainable development and to the preparation of strategies of sustainable development (Spangenberg, Omann, Bockermann, 2000).

Indicators approach to sustainable development strategies

Indicators synthesize complex data, in order to communicate vital information about the environment to officials, politicians, and the public. Many governments, research organisations, and NGOs have worked on sustainable development indicators. Among these, the OECD has been prominent in developing a common framework and common indicators for its member countries. OECD's framework is based on the Pressure-State-Response (P-S-R) model: indicators describe pressures on the environment, its state, and societal responses to address environmental problems. The indicator concept, which was developed by the OECD was widened by the European Environment Agency (EEA) and is being most broadly used by international organizations and local governments.

The main document dealing with sustainable development indicators is the Work Programme on Indicators of Sustainable Development (ISDs) adopted by the Commission on Sustainable Development (CSD) at its Third Session in April 1995. This programme issued a working list of 134 indicators and methodology sheets for their calculations. The aim of the CSD with respect to ISDs was to have an agreed set of indicators available for all countries to use by the year 2001.

Indicators for monitoring progress towards sustainable development are needed in order to assist decision-makers and policy-makers at all levels and to increase focus on sustainable development. Beyond the commonly used economic indicators of well-being, however, social, environmental and institutional indicators have to be taken into account as well to arrive at a broader, more complete picture of societal development.

This list of indicators should be seen as a flexible list from which countries can choose indicators according to national priorities, problems and targets. The indicators are presented in a Driving Force – State – Response framework.

While indicators can have different functions depending on the specific context and use, they are usually used in following roles by developing sustainable development strategies (Baltic Environmental Forum, 2000):

- Defining sustainable development targets and promoting integration between environment, social

conditions and economic and sectoral policy
- Reporting on environmental and social conditions
- Evaluating environmental and social performance – for example, the progress of national policies towards national objectives and international commitments
- Defining new policies for the implementation of sustainable development targets.

The main long-term planning document – Long-term Lithuanian Economy Development Strategy was approved in 2002 in Lithuania. It comprises 15 branch strategies. The main principles of sustainable development are integrated in these strategies. Some of these branch strategies are directly aimed at interaction between sectors (the factors of social development and economic factors of employment, economic factors of environmental protection, tourism development, etc.). Despite a great integrity of the certain strategies, there is a lack of clear relations between the aforementioned 15 strategies. In order to solve this problem the National Strategy of Sustainable Development was adopted in 2003. This strategy includes 6 branches of economy (transport, industry, energy, agriculture, household, tourism), 4 environmental sectors (air, water, biodiversity and waste), 4 main social aspects (employment, poverty and health, education, cultural identity) and regional development issues. All these economic, social, environmental and regional development issues are presented in close integrity. Sustainable development indicators for economical, social and regional development and state of environment are selected in the strategy for the monitoring of sustainable development however this system of indicators were not applied for the analysis of trends and only some targets of sustainable development were set using these indicators. Approach to integrate sustainable development indicators into national planning systems should be used with more extent. 3 principles may be singled out for the development of a system of indicators for sustainable development strategies (UN Department of Economic and Social Affairs, 2000):

- The topic approach, which was proposed by UN CSD. The topics are the largest priority problems in economic, environmental and social sphere
- Problem approach, which means that for each economic or other problem the special indicators are developed
- Capital approach is based on the types of capital – natural, human, physical, aggregate.

The first approach is more widely used and has been tested out and used in 22 countries and is integral, ensures accessibility of information and comparability at the international level. National sustainable development strategy may use this approach because the structure of Lithuanian national sustainable development strategy just follows this approach. Integration of ISD into preparation of strategy should be implemented by the following steps:

- To set targets of sustainable energy development
- To analyse trends and interlinkages of selected indicators of sustainable development
- To formulate response actions based on performed analysis
- To monitor the progress achieved towards set targets
- To evaluate efficiency of implemented policies.

In the following chapter the sustainable energy development indicators approach was used to illustrate application of ISD in preparation of sustainable development strategies. Energy sector is the priority sector in economic development because energy is closely connected with social, economic development, quality of life and it's production and consumption has the significant impact on environment.

Sustainable energy development strategy

The energy use is considered as a basic driving force that impacts environment. It is major contributor to environmental problems of global concern, such as climate change, acidification and urban air pollution. Energy is crucial for economic and social development, quality of life and consumption level. According sustainable development concept it is necessary to incorporate sustainable development goals into all sectoral policies (World Energy Assessment, 2000).

Appropriate list of sustainable energy development indicators were selected for the Lithuanian sustainable energy strategy preparation. These indicators can address the priority concerns or strategic priorities of energy sector development with defined headline targets (quantified sustainable energy development targets based on EU accession criteria) and relevant Response Actions that correspond to indicators selected. The Response actions on targeted indicator would define the possible policy measures and actions to be implemented seeking to achieve progress upon headline targets.

The priority areas were selected based on the main energy policy directions developed by third national energy strategy. These priorities and targets are related with EU accession:

- Energy consumption
- Energy intensities
- Structure of the economy
- Energy security
- Energy prices and energy affordability
- Environmental energy situation.

Seeking to review the state of energy priorities it is necessary to select the relevant indicators and complete analysis of trends and impacts from current energy policies. Trends in economics and demographics are the main socio-economic indicators that's can be considered as driving forces for energy consumption, energy intensities, environmental energy situation etc. So first of all it is necessary to assess trends in economics and demographics. Later trends in energy consumption and energy intensities, structural changes in economy and other trends can be assessed. Later trends can be related to implemented energy policies and new policies can be formulated. First four priority areas are attributable to economic dimension indicators. Energy prices and energy affordability reflect social dimension indicators. Environmental energy situation is represented by environmental dimension indicators (CO_2 emissions).

From analysis of energy consumption using few indicators (total primary energy, final energy and electricity

supply per capita) the following conclusions was drawn:

- Final energy consumption per capita is more than 2 times lower in Lithuania than in EU and is continuously decreasing. At the same time final energy consumption per capita is slowly increasing in EU. So the difference between final energy consumption level in EU and Lithuania is still increasing.
- Electricity per capita consumption growth trends are negative in Lithuania. Since 1994 some stabilisation of electricity per capita growth can be noticed. This trend is negative because there is no other way to increase economic growth and quality of life without increase in electricity consumption per capita.
- Low final energy and electricity consumption per capita shows the low income and low living standards in Lithuania. Therefore the further analysis of energy affordability is necessary seeking to define reasons for such low final energy and electricity consumption.
- The big difference between TPES and final energy consumption per capita shows the low energy conversion efficiency in Lithuanian energy system comparing with EU. Further analysis of energy utilisation efficiency and energy intensities is necessary seeking to define measures able to improve situation.

From analysis of energy intensity (TPES/GDP PPP, Final energy/GDP PPP) the main conclusion is that primary energy intensity of GDP in Lithuania is more than twice higher than EU average (IEA statistics, 2001; IEA statistics, 2002). Though in EU the positive trends of decoupling of final energy and electricity consumption per capita from final energy and electricity intensity can be noticed in Lithuania final energy and electricity intensity of GDP is decreasing more slowly than final energy and electricity consumption per capita. These trends should be changed. Seeking to define the impact of the changes in the structure of economy on the energy intensity decrease the less aggregated analysis of energy intensity is necessary.

Analysis of structural changes in Lithuanian economy (Value added produced by different sectors of economy, energy intensities in economic sectors) showed that their had a positive impact on energy intensity decrease. The share of value added from industry decreased but from commercial sector, which is the least energy intensive, increased. In general energy intensity decreased in all branches of economy but reduction of energy losses and implementation of energy efficiency measures is still needs to be a priority area in energy supply and consumption.

Energy security issues are problematic in Lithuania. The net energy import dependency in Lithuania is almost 90% (Lithuanian energy institute, 2003). As Lithuanian energy sector depends on energy import a lot it is necessary to increase indigenous energy production and utilization of renewable energy sources. In 2000 indigenous or renewable energy sources in total primary energy mix amounted to 9.2%. EU target is 12% of renewable energy sources in the overall energy balance by 2010. The same target is set for Lithuania in National energy strategy adopted in 2002. The share of indigenous electricity to total electricity production is very small in Lithuania and makes about 3%. In EU this indicators is high more than 14%. The EU target for year 2010 is 22.1%. Lithuania agreed with EU to implement 7%. Measures to enhance utilisation of renewable energy sources are necessary.

Household energy prices are very high in Lithuania comparing with income. Energy affordability can be treated as social problem Lithuania. The worst situation with energy affordability in Lithuania is in heating sector because district heat prices in Lithuania are very high (only about 14% lower than in EU countries) comparing with low disposable income of population (more than 4 times lower than in EU). The amount of heat that could be consumed monthly to current consumer prices and income indicates that in Lithuania the heat witch can be consumed by average population is 13 times lower than in EU. The amount of electricity-consumed daily to current electricity prices in Lithuania was 8 times lower comparing with EU average and electricity prices were 2.3 higher in EU (Baltic Environmental Forum, 2001). Seeking to ensure energy affordability social support schemes to low-income population are necessary.

The main environmental problem in energy sector is climate change. In EU CO_2 emissions per kWh are twice higher than in Lithuania and electricity consumption per capita is also more than twice higher (IEA statistics, 2003). The trend of CO_2 emissions decrease with increase of electricity consumption per capita can be noticed in EU. In Lithuania other trends can be noticed – the decrease of electricity consumption per capita is stipulated by decrease of CO_2 emissions per kWh. Only in the case of implementation of appropriate GHG mitigation measures Lithuania will be able to fulfil the Kyoto commitments after the closure of Ignalina nuclear power plant.

The most problematic areas in Lithuanian energy sector are: energy intensity, utilisation of renewable energy sources and energy affordability. New policies to address these problems should be implemented (new support schemes for low income population to increase energy affordability, new measures to enhance renewable energy sources utilisation, reduction of energy transformation losses in the system, local and international climate change mitigation measures).

Conclusions

The sustainable development concept merges two urgent goals: a) to ensure appropriate, secure, wealthy life for all people – its is the goal of development, and b) to live and work in accordance with bio-physical limits of the environment – it is the goal of sustainability. These goals are not contradictory, but effective sustainable development management is necessary to implement them because markets can't solve the problems of externalities and inequality of income and whereas sustainable development concept alongside with economic highlights environmental and social issues of development the state regulation measures are to be implemented seeking to overcome market failures. Using sustainable development indicators approach and integrating them into national planning systems and sustainable development strategies preparation process can define these policy measures.

Example of integration of indicators of sustainable energy development into sectoral sustainable strategy preparation illustrates that this approach can help to carry out analysis of interlinkages between social, economic and environmental development targets, evaluate their trends and define relevant policy measures implementing sustainable development management concept.

Appropriate list of sustainable energy development indicators addressing priority concerns of Lithuanian energy sector development were selected for Lithuanian sustainable energy strategy preparation. The targeted indicators were defined establishing quantified sustainable (economic, social and environmental) energy development targets based on EU accession criteria. The Response actions on targeted indicators or possible policy measures and actions to be implemented seeking to achieve progress upon headline targets were proposed in the strategy.

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Darnaus vystymosi rodiklių integravimas darnios plėtros programose

Santrauka

Straipsnis supažindina su kai kuriais teoriniais darnaus vystymosi koncepcijos aspektais bei su darnaus vystymosi indikatorių integravimo darnaus vystymosi strategijose klausimais.

Straipsnyje aptariamas ekonominis augimas ir jo poveikis aplinkos taršai bei pajamų pasiskirstymo netolygumui. S. Kuznets klasikinė kreivė aprašo BVP/gyventojui augimo įtaką pajamų pasiskirstymo tarp gyventojų netolygumui šalyje. S. Kuznets ekologinė kreivė parodo BVP/gyventojui augimo įtaką gamtinių išteklių vartojimui ir taršai. S. Kuznets kreivės yra varpo formos ir aiškiai rodo, kad didėjant BVP/gyventojui pradžioje pajamų pasiskirstymo netolygumas bei gamtinių išteklių naudojimas ir tarša auga, bet, pasiekus tam tikrą, pakankamai aukštą BVP/gyventojui lygį, pajamų pasiskirstymo netolygumas bei tarša ima mažėti. Straipsnyje ekonominio augimo pozityvus poveikis aplinkosauginių ir socialinių darnaus vystymosi dimensijų srityje išryškintas, pasiūlius aplinkosauginių ir socialinių politikos priemonių įgyvendinimą ekonominės plėtros strategijose. Straipsnyje išnagrinėtos S. Kuznets klasikinė ir aplinkosauginė kreivės, remiantis naujausių tyrimų, paneigiančių arba patvirtinančių S. Kuznets nustatytus dėsningumus, šioje srityje medžiaga. Kadangi mokslininkai tarpusavyje iki šiol nesutaria, ar ekonominis augimas veikia pajamų pasiskirstymo netolygumus ir taršą, kaip nustatė S. Kuznets, tačiau galima padaryti išvadą, kad nors ne visose šalyse ir ne visada varpo formoje išsidėsto ekonominį augimą bei taršą ir pajamų nelygybę atspindintys rodikliai, galima vienareikšmiškai teigti, kad kaip tik aplinkosaugos bei socialinės politikos priemonių įgyvendinimas augant ekonomikai, gali užtikrinti taršos bei socialinės nelygybės mažėjimą, o to ir būtina siekti, nes S. Kuznets kreivė logiškai parodo, kad, turint daugiau piniginių išteklių, lengviau užtikrinti socialinių bei aplinkosauginių problemų sprendimą, ir natūraliai turingesnės šalys daug daugiau dėmesio ir finansinių išteklių skiria aplinkos apsaugai, energijos efektyvumo didinimui, naujoms technologijoms, naudojančioms atsinaujinančius išteklius, bei stengiasi kuo geriau pasirūpinti skurstančiąja ar socialinėje atskirtyje gyvenančia visuomenės dalimi.

Straipsnyje suformuota teorinė pagrindinių darnaus ekonomikos vystymosi dimensijų sistema bei parengta tą sistemą atitinkančių indikatorių sistema, skirta darnaus vystymosi programų rengimui. Indikatoriai yra labai lankstus politikos formavimo įrankis, palengvinantis informacijos pateikimo kompleksiškumą ir sumažinantis reikalingos išnagrinėti informacijos kiekį iki svarbiausių elementų. Indikatoriai taip pat įgalina efektyvią duomenų ir informacijos paiešką bei duomenų palyginimą. Darnaus vystymosi indikatoriai yra sugrupuoti pagal pagrindines darnaus vystymosi dimensijas: ekonominiai, socialiniai ir aplinkosauginiai. Plačiai pripažinti yra penki indikatorių tipai: poveikio indikatoriai, būsenos indikatoriai, reagavimo indikatoriai, varomosios jėgos indikatoriai. Poveikio indikato-

riai perduoda tiesioginį žmogaus veiklos poveikį aplinkos būklei; būsenos indikatoriai atspindi dabartines sąlygas arba reiškinio būseną. Kadangi poveikio indikatoriai atspindi efektus, sukeltus aplinkos sąlygų, kartais sunku rasti būsenos ir poveikio indikatorių skirtumą. Reagavimo indikatoriai rodo politikos priemonių poveikį visuomenei. Varomosios jėgos indikatoriai, atspindintys socialinius ekonominius ar socialinius kultūrinius faktorius, įgalina padidinti arba sumažinti poveikį aplinkai.

Buvo apžvelgti trys indikatorių pritaikymo principai ir pateikti indikatorių integravimo į nacionalinę planavimo sistemą pasiūlymai, remiantis Lietuvos Nacionalinės darnaus vystymosi strategijos struktūra. Ši strategija apima 6 ekonomikos šakas (transportą, pramonę, energetiką, žemės ūkį, namų ūkį, turizmą), 4 aplinkos sektorius (orą, vandenį, biologinę įvairovę ir atliekas), 4 pagrindinius socialinius aspektus (užimtumą, skurdą ir sveikatą, švietimą, kultūrą) ir regioninės plėtros problemas. Visos šios ekonominės, socialinės, aplinkosauginės ir regioninės plėtros problemos yra glaudžiai susijusios ir sudaro visumą. Strategijoje buvo pasiūlyti kai kurių ūkio šakų ir aplinkosauginio sektoriaus indikatoriai, tačiau nebuvo įvertinta jų tarpusavio sąveika, taip pat nebuvo atliktas šių indikatorių trendų laike palyginimas. Straipsnyje pateiktas darnaus vystymosi indikatorių parinkimo ir jų integravimo į darnaus vystymosi strategijoje metodas. Šio metodo svarbiausia idėja yra ta, kad visi pagrindiniai darnaus vystymosi indikatoriai yra susiję vienas su kitu per jų nuoseklaus tarpusavio poveikio grandinę. Ekonominiai indikatoriai turi tiesioginę įtaką socialiniams ir aplinkosauginiams indikatoriams, todėl naujos politikos priemonės, turinčios įtakos ekonominės dimensijos indikatoriams, turėtų būti įgyvendinamos pirmiausia. Siekiant efektyviai panaudoti darnaus vystymosi indikatorius darnaus vystymosi strategijų arba programų rengime, pirmiausia būtina nustatyti prioritetines darnaus vystymosi problemas Lietuvoje. Naudojant būklės indikatorius bei juos lyginant, pavyzdžiui, su ES-15 šalių vidurkiu, galima nustatyti, ar esama būklė yra patenkinama, ar kritiška. Kadangi indikatoriai yra susiję, nustačius pagrindines problemas, parenkami kiti ekonominės, socialinės ir aplinkosauginių dimensijų indikatoriai (poveikio,būsenos, reagavimo ir varomosios jėgos indikatoriai), veikiantys arba aprašantys iškeltą problemą arba prioritetus. Nagrinėjant indikatorių kitimą laike bei jų tarpusavio poveikį galima ne tik atspindėti problemą nuoseklioje indikatorių grandinėje, bet ir pasiūlyti atsakomąsias priemones, nukreiptas į varomosios jėgos indikatorius, kurios garantuotų būklės indikatorių kitimą norime linkme, sušvelnintų krizinę situaciją arba įgalintų pasiekti negatyvių tendencijų persilaužimą.

Kadangi šalys labai skiriasi savo išsivystymo lygiu, jų darnaus vystymosi problemos taip pat skiriasi. Lietuva, kaip pereinamojo laikotarpio ekonomikos šalis, susiduria su daugeliu darnaus vystymosi problemų, atspindinčių pasaulinius darnaus vystymosi prioritetus. Lietuvoje paruošta Subalansuotos plėtros įgyvendinimo ataskaita bei parengta Nacionalinė subalansuotos plėtros strategija. Straipsnis siekia ne atkartoti šių svarbių dokumentų teiginius bei išvadas, bet, taikant apibrėžtą rodiklių sistemą, atspindinčią prioritetinius visų pasaulio šalių darnaus vystymosi tikslus, apžvelgti Lietuvos darnaus vystymosi rezultatus bei problemas.

Kaip rodo atlikta, (kad ir labai paviršutiniška), analizė, Lietuvoje daugiausia problemų kelia socialiniai darnios plėtros tikslai, tokie kaip gyventojų sveikatos būklė, skurdas bei lyčių lygybė. Sveikatos rodikliai, kurie kelia didžiausią nerimą Lietuvoje, yra aukšti kūdikių bei gimdyvių mirtingumo rodikliai, palyginti su ES šalimis, bei tuberkuliozės atvejų 100 000 gyventojų aukštas rodiklis. Be to, ir vidutinės būsimojo gyvenimo trukmės rodiklis Lietuvoje yra žemas, palyginti su ES. Dabartiniu metu moterų gyvenimo trukmė trumpesnė 1,5, o vyrų 5 metais,palyginti su ES vidurkiu, nors nuo 1995 m. ryškėja pažangios augimo tendencijos.

Pagrindinis ekonominis rodiklis, parodantis šalies ekonominę gerovę, BVP, tenkantis vienam gyventojui, perskaičiuotas pagal PGS, Lietuvoje yra tris kartus mažesnis už ES vidurkį. Nacionalinis skurdo lygis siekia 16 proc.

Darnaus vystymosi principų integravimo į šalies politikas rodiklių, tokių kaip miškingumas, saugomų teritorijų aprėptis, dinamika Lietuvoje pasižymi pažangiomis tendencijomis. Energijos intensyvumas be CO_2 emisijos vienam gyventojui taip pat mažėja nuo 1990 m, tačiau šioje srityje negalime vienareikšmiškai teigti, kad viskas gerai.

Lietuvos parengta nacionalinė subalansuotosios plėtros įgyvendinimo ataskaita, skirta Johanesburgo susitikimui, parodė, kad Lietuvos ekonomika atsigauna ir auga, o aplinkos tarša beveik nedidėja, tačiau, uždarius Ignalinos AE, kai pasikeis energijos gamybos šaltinių struktūra, šie trendai gali pasikeisti, todėl Lietuvos prioritetinėse darnaus vystymosi kryptyse atsispindi ir energetikos plėtros klausimai.

Be to, nereikia užmiršti, kad ekonomikos plėtros tikslas yra vartojimas, o ne gamyba, todėl šalia rodiklių, įvertinančių aplinkos būklę bei gamybos efektyvumą, būtina nagrinėti tokius rodiklius kaip galutinės energijos, elektros energijos suvartojimas vienam gyventojui, kurie atspindi gyvenimo lygio standartus.

Energijos intensyvumo, CO2 emisijų kWh mažėjimas mažėjant energijos suvartojimui 1 gyventojui rodo, kad energetikos plėtra nėra darni: energijos intensyvumas ir tarša Lietuvoje mažėja ne dėl pažangių gamybos būdų ir energijos efektyvumo augimo, bet dėl mažėjančio energijos suvartojimo, kuris ir taip rodo žemus gyvenimo lygio standartus. Tuo tarpu ES šalyse matomos priešingos tendencijos – energijos suvartojimas vienam gyventojui nuolatos didėja, nežymiai mažėjant energijos intensyvumui ir CO2 emisijoms vienam gyventojui.

Raktažodžiai: *darnus vystymasis, darnus energetikos vystymasis, darnaus vystymosi indikatoriai.*

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