16th INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC GEOCONFERENCE S G E M 2 0 1 6

ENERGY AND CLEAN TECHNOLOGIES
CONFERENCE PROCEEDINGS
VOLUME I

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NUCLEAR TECHNOLOGIES

RENEWABLE ENERGY SOURCES AND CLEAN TECHNOLOGIES

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30 June – 6 July, 2016
Albena, Bulgaria

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Published by STEF92 Technology Ltd., 51 "Alexander Malinov" Blvd., 1712 Sofia, Bulgaria
Total print: 5000

ISBN 978-619-7105-63-6

ISSN 1314-2704

DOI: 10.5593/sgem2016B41

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RENEWABLE ENERGY SOURCES AS ONE OF THE INDICATORS FOR EVALUATING THE QUALITY OF LIFE

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ABSTRACT

Assessment and evaluation of quality of life is part of sustainability. It allows you to compare and evaluate the development of human society. The very quality of life and its perception is the result of complex relationships and closely linked to the quality of the environment. Protecting the environment enhances our quality of life economize and the protection of fossil fuels, increased use of renewable energy sources. Efficient use of energy sources contributes significantly to improving the quality of life of the population, particularly in connection with the possibility of management and regulation of consumption in order to optimize its use in specific circumstances. The main goal of optimizing the use of the delivery of only the amount of energy required to ensure the comfort of life. The paper is dedicated indicator of renewable energy sources and its impact on improving the quality of life.

Keywords: Quality of life, quality of life index, renewable energy, the evaluation of the quality of life, sustainability

INTRODUCTION

Quality of life is part of sustainability. It allows you to compare and evaluate the development of human society in the different time periods and countries and regions. The very quality of life and its perception is the result of complex relationships and is closely linked with the quality of the environment. Protecting the environment is currently one of the priorities of government strategy.

The term "quality of life" is directly related to human existence and it creates and affects an endless variety of factors, it is also the result of the interaction of social, health, economic and environmental conditions. To get public awareness already in the 60s of last century, when the focus was on the quality of life of individuals.

Among the most important components of quality of life are well- being and satisfaction. The two terms are often confused with each other, because they like the quality of life have a number of definitions. Way of assessing the quality of life depends on certain terms of its perception. We distinguish the psychological, sociological,

medical, geographical and regional dimension. Each of the aspects is a different assessment of quality of life.

Generally, can identify the two basic dimensions of quality of life: the objective and subjective dimensions. Subjective concerns the general satisfaction with life and expresses a sense of well-being and comfort, or satisfaction with the phenomena around us. The objective aspect quality of life refers to the conditions of life. Quality of life is measured through indicators and indices at different territorial levels.

SUSTAINABLE DEVELOPMENT

According to the National Sustainable Development Strategy [1] sustainable development is understood as „a targeted, long-term (continuous), comprehensive and synergetic process affecting conditions and all aspects of life (cultural, social, economic, environmental and institutional) at all levels (local , regional, global) and directed towards a functional model of a certain community (local and regional community, country, international community), which meets biological, material, spiritual and social needs and interests of people, while eliminating or significantly reducing interventions threatening, damaging or destroying conditions and forms of life, does not burden above the acceptable level, wisely using its resources and protects the cultural and natural heritage. "

Within the need for monitoring and evaluating compliance with the principles of sustainable development and the achievement of objectives in the Slovak Republic they were selected indicators covering all pillars of sustainable development. (Fig. 1)

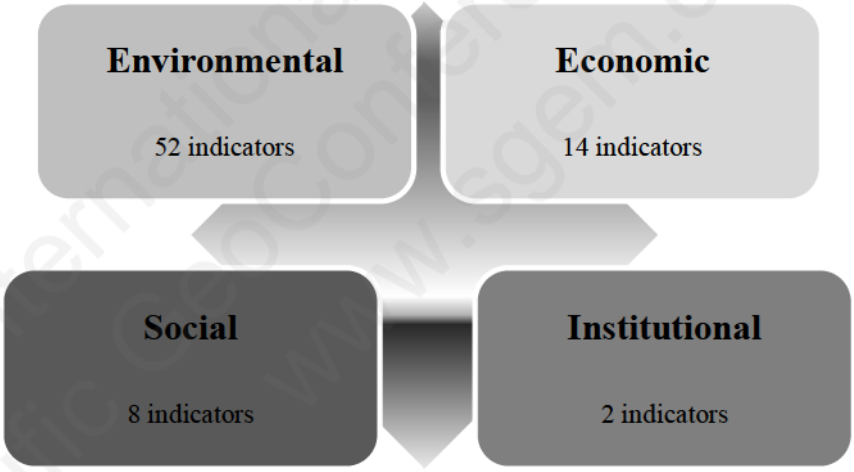

Fig. 1 Pillars of sustainable development

In the context of each indicator, it is necessary to collect a large amount of data which are then processed, analysed and evaluated. To manage the type of data it is advisable to use geographic information systems and tools that we offer. Some indicators are already currently being processed in a GIS environment and presented either in the form of maps or map server public. The important role played by the quality of data which subsequently enter into the evaluation process.[2]

Renewable energy can be produced from various natural sources such as wind, solar, water and biomass. The energy from these sources is considered to be clean, safe and above all inexhaustible. Increased support and economic evaluations are especially important for the expansion of its use [3], [4]. Increased use of renewable energy has an

impact on improving the population's health and the environment. In the context of rational use of energy it is one of the possibilities of using the so called smart grids. [7]

European Union member states, among which classified and Slovakia, have undertaken that by 2020, reduce greenhouse gas emissions by 20%, while renewable energy will account for 20% of final energy consumption and 10% of the consumption in transport and energy consumption also reduced by 20 percent compared with its forecast value. To achieve these objectives, it is necessary to reduce the burning of fossil fuels to prevent growing deforestation reasonably tilling the soil, manage waste, conserve energy. For this reason it is necessary to invest in new technologies, use of renewable energy sources, build efficient homes, prefer modern clean industry, use of ecological vehicles.

One of the basic priorities of the Energy Policy is to increase the share of renewable energy to produce electricity and heat in order to create adequate additional resources needed to cover domestic demand [6]. Rational management of indigenous renewable energy sources is in accordance with the principles of sustainable development, thus becoming one of the pillars of socio-economic development.

QUALITY OF LIFE

Quality of life is an inherently abstract concept, so it is very difficult to measure and quantify. And the will to do the evaluation is used for the indirect way by using indicators (indicators) quality of life. Basically, it is a selection of elements that are considered important and given them meaning.

To measure the quality of life, but also use simple and complex indicators at the state, region or selected area. Easy to measure indicators of the quality of life in a single component. On the other hand, complex indicators are used by the state or individual. All these factors, indices and indicators try to capture not only the quality but the quantity and quality of life. Individual indicators can be compounded into hierarchically overarching fields - domains.

In selecting indicators we distinguish between form and content criteria. The formal criterion for the selection of indicators presupposes the fulfillment of basic conditions such as: quantifiable, statistical audience at less frequent intervals required notice ability in terms of differentiation and avoiding duplication. Content criterion is determined by the way of understanding quality of life [5].

The perception we distinguish between objective and subjective approaches.

Objective approach reflects rather the external conditions of life:

- Gross domestic product (GDP) - is the market value of goods and services produced in the country. It is usually converted to per capita and weighs the purchasing power parity, which enables comparisons of countries with different economic efficiency,
- Human Development Index (HDI) - is the comparative data states of the world elaborated United Nations Development Programme, based on the belief that the quality of life at all levels is essential in particular the possibility to live a long and healthy life, education and the possibility of obtaining access to resources required to ensure a decent life,

- Index of Social Progress (ISP) – it is used to a more balanced measurement and monitoring of human welfare in different societies than allow other standardized indicators such as GDP,
- Index of Economic Well-being (IEWB) - is the based on two main ideas and the recognition that economic well-being is the multidimensional, and the index value should reflect the fact that the aggregation of the various domains being and also should respect the diversity of individual values,
- Happy Life Years (HLY) - concept is based on a simple and logical idea that a comprehensive statement about the quality of life can be obtained only from individuals. As long as they feel happy and have a long life, says that the good social environment and living conditions,
- Legatum Prosperity Index (LPI) – It was created in 2007 and yearly overview of the prosperity of the 101 countries studied. Prosperity has seen as good results in the economic field and in quality of life.

QUALITY OF LIFE INDICATORS

Supporting the development of renewable energy as a fundamental pillar the Energy Policy of the Slovak Republic a place in the laws and strategy documents, processing of the departments at the national level. Slovakia also a responsible approach to international conventions on climate change and sustainable development adopted by several international commitments. The team is formed by the basic premise to support the development of renewable energy sources in Slovakia. Renewable energy sources are also included as indicators for assessing the quality of life.

The Beyond GDP initiative

The Beyond GDP initiative is a European initiative to measure progress changing world (COM / 2009/433). The result of the initiative are the indicators of quality of life related to different spheres of life. These indicators complement the traditional indicator used as a measure of economic and social development - gross domestic product.

The initiative addresses complementing GDP with environmental and social indicators - indicators that summarize important issues with a single figure are essential communication tools. GDP and the unemployment and inflation rates are prominent examples of such summary indicators. However, serve to gather information about how we stand on issues of the environment or social inequalities.[8]

The European Commission also proposed the creation of a comprehensive environmental index as it would come into consideration ecological and carbon footprints, but both are limited in scope (The carbon footprint refers only to greenhouse gas emissions and ecological footprint excludes some impacts, eg. Impact on the water).

Proposed indicators of quality of life within The Beyond GDP initiative covering eight areas, which would include material conditions of housing, work or main activity, health, education, leisure and social communication, economic and personal security, governance and fundamental rights and the environment housing. At the same time in the evaluation also takes into account the total life experience.

Environmental protection in recent decades has paid great attention. The vast majority of European citizens believe that environmental protection is important. Air pollution,

water and impact noise can have a direct impact on people's health and economic prosperity of the company. Subjective (self-perception of individuals) and objective factors (the amount of air pollutants) are included in the indicators of quality of life in the environment and living conditions [9].

Environment and housing:

- Pollution, dirt, or other problems in the field of environment,
- Noise from neighbours or from the street,
- Population exposure to air pollution by fine particle.

Sustainable Society Index – SSI

The Sustainable Society Index is published by The Sustainable Society Foundation, which was founded in 2006. The index is published every two years.

Sustainable society index for 2014 was compiled from 21 indicators that were grouped into seven fields. Such fields have been integrated into three categories Human Wellbeing, Environmental Wellbeing (Fig. 2) and Economic Wellbeing.

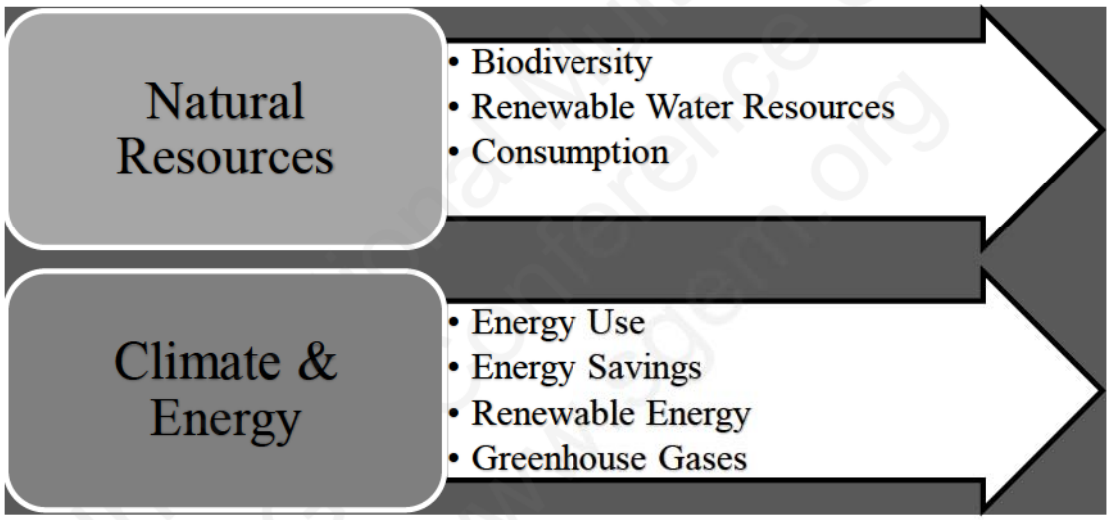

Fig. 2 Indicators under the category Environmental Wellbeing

Category contains indicators of human well-being enough food, drinking enough water, safe sanitation, education, and health years of life, gender equality, income distribution, population growth and good governance. Category contains environmental quality indicators of biodiversity, renewable water resources consumption, energy consumption, energy saving, renewable energy and greenhouse gases. Category contains indicators of economic well-being of organic agriculture, energy, GDP, employment and public debt.

Slovak Republic reached in 2014 the highest aggregate indicators in the context of sufficient food, drinking enough water, safe sanitation and renewable water resources. Performed the worst indicators in the context of renewable energy, employment, energy use and consumption of natural resources (Fig. 3).

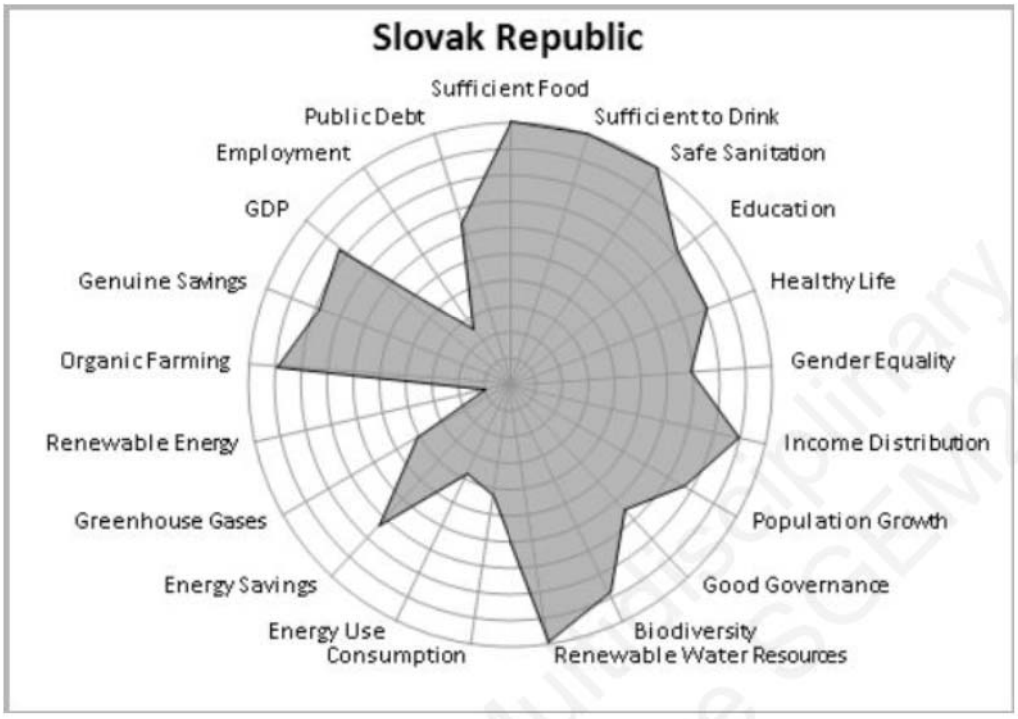

Fig. 3 Sustainable Society Index [10]

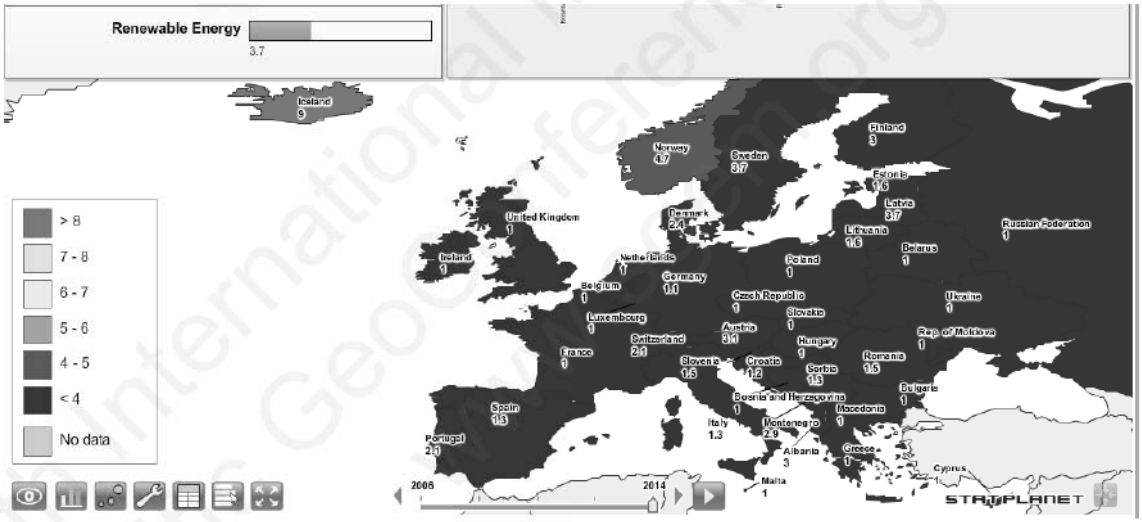

Fig. 4 Indicator Renewable Energy [11]

Figure 4 displays the data in the context of Sustainable Society Index for 2014. The indicator for Slovakia is equal to 1.

CONCLUSION

Use of alternative sources becomes part of all realistic scenarios to promote sustainable development and energy security in the Slovak Republic and Europe. Development and evolution of society and the issue of measuring progress cannot be equated only with economic growth (GDP), but must also be meeting the objectives not only in the social sphere, but also in the environmental field. That point of view requires a comprehensive approach for dealing with and taking into account a number of diverse factors. Quality of life issue requires discussion and review of the use of indexes and indicators.

Recently, the indicators have been complemented by topics of environmental protection and renewable energy. The quality of life of individuals is closely linked with the state of the environment in which we live and which surrounds us.

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