

INDICATORS USED FOR THE PERFORMANCE MEASUREMENT OF SUSTAINABLE DEVELOPMENT

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The development of the environment of a company has a direct influence on its performance and its success. For this reason a company should not only analyze its internal performance, but also the external performance of the business environment and the sustainable development. In order to help the management of a company, this article presents a system of indicators for the performance measurement of the sustainable development. To cover all aspects which influence the sustainable development, there are analyzed six categories of indicators: the economic development, the development of the population, the education level, the protection of the environment, the innovation degree and the development of the infrastructure. For each of these elements there are presented several indicator systems and their development for Romania.

Key words: performance measurement, sustainable development, indicators, economic development

The article's JEL code: M20

1. Introduction

The success of a company is influenced not only by the internal management aspects, but also by the external elements of the environment. In order to have success, the manager of a company has to monitor and analyze in a permanent way both the internal factors and the external factors so that he observes in time the negative aspects and takes measures in order to eliminate these negative directions. Only those companies can survive and have a long term success, which have the ability to observe the negative developments in time and to react to them, by showing a great capability of adaptation to those negative changes (Pelau, 2009). Especially in time of financial and economical crisis, it is important to have this capability to adapt to the developments of the environment and probably only those companies, which have this capability, will survive the crisis.

The measurement of the performance of a company and its environment contributes to the adaptation capability of the company. The analyzed indicators allow the company to detect in time the negative developments and to take measures in order to reduce the effects of these changes. That is why, it is important to monitor and analyze permanently the efficiency and efficacy of the company and its environment.

This article concentrates on the performance measurement of the external factors of the company, more precisely on the performance of the sustainable development. The sustainable development of a region or a country offers a good framework for the development of the company. For this reason a company should monitor its performance. In this article there is presented a system of indicators which take in consideration the most important elements for the sustainable development. There are presented both the indicators for each of the components of sustainable development and the relation between them.

2. The performance measurement system for sustainable development

In order to increase the overall performance of the sustainable development of a region or a country, the management of it has to take in consideration six main elements as it can be seen in fig. 1. These elements are the economic development, the population and its education, the innovation degree, the infrastructure and the environment. The performance measurement of the sustainable development includes indicators for all six elements.

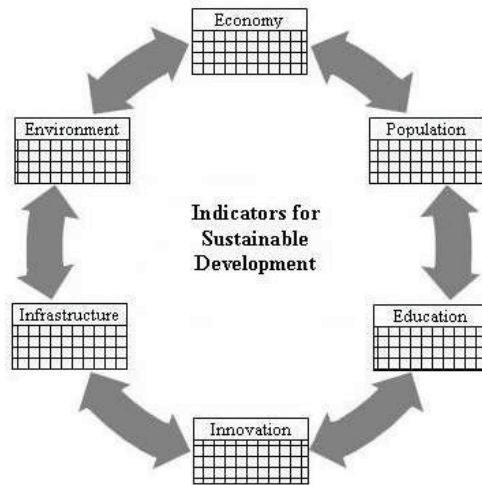


Fig. 1.: Categories of indicators for sustainable development

An efficient and efficacy performance measurement system should take care that each of the elements should be developed, but besides this there should be a balance between these factors. In fact between the six elements there are both positive direct relations and contradictory relations. There are factors which influence in a positive way the development of other factors, but there are also factors which are developed in the detriment of others. For instance the development of the population and its conditions of living improves the level of education, for people who have a minimum standard of living try to achieve a better position in the society. Moreover a higher level of education stimulates the innovations in a country. Besides this innovations and a high level of education create new technologies which contribute to the creation of a modern infrastructure. A modern, environment-friendly infrastructure helps to improve the conditions of the environment, by reducing the pollution in the country. Not less important is the clean, healthy environment which gives the population the possibility to develop itself and to be healthy. All these elements are sustained by good economical developments which invests in them in order to develop them, although the relation here has also to directions. So in a reverse direction, the development of innovations, research and even infrastructure, the economy of a country can be developed.

In spite of the positive, constructive relations between the elements, there are also opposed and contradictory connections. Especially, at a reduced or limited budget different conflicts may appear regarding the possibilities of investments. For instance there should not be a very high development of the economy in the detriment of the environment or we should not develop to much the infrastructure, but neglect the education.

3. Indicators used for the performance measurement of the domains of sustainable development

In this chapter, there are analyzed the importance of each element and its contribution to the sustainable development. There are also presented several indicators and indicators systems for all of the six factors and their development in Romania.

3.1. Indicators for economic development

The economic development is important for the sustainable development of a region or a country, because it is the element which finances the development of the other factors. Only by a good economical situation there can be invested in the other elements from the presented model. On the other hand the development of the other factors influences in a positive way the growth of the economy, for innovations or infrastructure create a valuable framework for the economy.

There is great number of indicators which evaluate the performance of the national or a regional economy. The National Institute of Statistics, Romania divides the indicators into three categories: investments, competitiveness and occupation of the population (Institutul National de Statistica, 2009). In the first category there are considered the gross domestic product (GDP), the growth of the gross domestic product, gross domestic product per population, inflation, economies of the population, national income, costs of the consumption. By analyzing the results it can be easily observed that there are differences in the economical developments of the regions in Romania. For instance the greatest developments are around Bucharest, with a GDP/person of about 28325,7 lei/inhabitant and in the western and central part of Romania with about 14960,4 lei/inhabitant and 13549,2 lei/inhabitant and only 9114,2 lei/ inhabitant in the north-eastern region (Institutul National de Statistica, 2009). The other two categories contain elements regarding the productivity of work, the occupation degree of the population and the unemployment. Besides this, there

are also other indicators which give an overview of the wealth of the economy such as the number of companies in certain field, the structure of the economy on different fields, whereby a country can specialize on its strength domains, people active in a certain field and many others. Because of the financial crisis, the actual trend of the indicators is a negative one. The government of the country should take measures which will assure the long term success of the economical development.

3.2 Indicators for the general development of the population

The population of a country or of a region is an important element for the sustainable development, because it sets the basis for all the other activities. Only with a healthy, wealthy and qualitative population there can be developed a growing, prosper economy, there can be a good education system which sustains the innovations and the infrastructure of a country or a region, and last but not least it sustains a clean environment. Actually the population can be seen as the blood which flows through the venous of the system. For this reason it is important to monitor the development and the situation of the population.

There are many aspects which characterize and analyze the situation and the development of the population. One of the most important aspects is the number of the population, for in case of negative developments several measures should be taken. Besides this, according to the National Institute of Statistics, Romania there should be analyzed the poverty and the social exclusion, the obsolescence of the population and the public health (Institutul National de Statistica, 2009). In order to measure these elements, there are used indicators such as poverty rate, distribution of income, the percentage of the population with lower income than the minimum accepted, access to work, school abandon and the percentage of the population with a education level below the minimum accepted. Besides this other elements can be also analyzed ad for instance consumer behavior, purchasing power and the culture and habits of the population. All these indicators alert the government of a country in case of negative development, which might influence in a negative way the other elements.

3.3 Indicators for the level of education

Education is an indispensable and fundamental social component, which has the goal to reach a sustainable development and involves a long term process that seeks to develop values like solidarity, equality, inclusion (integration) and cooperation among all citizens. The education system primarily aims to educate and to form the population and to prepare them as the future political, economical and social decision factors. Moreover they train specialized human resource so that they will be able to develop and implement strategies by which the population will become aware of the priorities of international development and sustainable human development through a better understanding of the causes and effects of global problems and solving them through a personal and informed involvement. Education plays also an important role in other fields as for instance the innovation, the infrastructure, environment and economy. Only be well educated people, a country or a region will be able to develop these elements.

By analyzing the statistic indicators between 2000 and 2007 one will notice an improvement of the situation in Romania (Institutul National de Statistica, 2009). The percentage of the population with a low education level has decreased over this period with about 5% (people who are 15 years or more and people between 25 and 64 years old) and the ratio of young people (18 to 24 years old) quitting the education system early has diminished over the same period of time with 4.3%, but it remains over the mean level of EU-27 of 15.2%. The competitive training is provided through lifelong learning, therefore by linking education and learning during lifetime to the labor market and by providing greater opportunity for future participation in the modern, flexible and inclusive labor market. Unfortunately the statistic indicator of permanent education in Romania shows that during the last 5 years the value remained constant, at 1.5%.

3.4 Indicators for the environment

The environment offers a benefical framework for the development of the population and their living standards. All human activities of degradation and pollution of the surrounding environment have negative effects on human health, biodiversity and ecosystems, and are also causing economic damage. Therefore it is essential that not only the enterprises that operate in pollutant industries, but also those in less pollutant industries to show their responsibility towards the protection of the surrounding environment. The population should be also trained to involve itself in the protection of the environment through activities of recycling, electricity or clean water savings an others.

The sustainable development aims to improve the environmental factors. According to the National Institute of Statistics, Romania the main indicators of sustainable development with reference to the environment belong to some areas such as climate change and energy, nature and biodiversity, quality of life in urban area and of environment in general, natural resource usage and waste generation, transportation and recycling. For analysis and measurement are used indicators such as emissions of greenhouse gases, CO₂ emissions per capita and gross domestic energy consumption, waste generated by economic activities, changes in the state of the threatened and/or protected species, the percent of population with access to drinkable water, the connection of population to the purification stations of used water, the percentage of forests affected by defoliation, energy consumption by means of transport, etc. The government should take measures in order to reduce the negative impact on the environment

as much as possible especially through the use of biodegradable products, and in order to increase the usage of energy from renewable resources. It should also encourage the organic farming that delivers the population ecological products and the society emphasizes on the waste recycling as well.

3.5. Indicators for the degree of innovation

Innovations are very important for the development of the humanity and they can change the behavior and the living standards of the population. Innovations can be created only with the help of a well developed education system and they contribute in a significant way to the development of the economy, because they can contribute to the growth of the productivity of work, to new technologies and other. Besides this, innovations can lead to the development of new products which will make profits on the worldwide markets.

In order to measure the innovation potential of a country or a region, it is important to monitor the number of innovations in a certain period, their degree of innovation, by considering the differences of the product or technology in comparison to the existing one, their potential on the markets and others. Not less important are the costs of the innovations. It is important to analyze how much the consumers are willing to pay for the innovation and if this price covers the costs of the innovation.

3.6. Indicators for the development of infrastructure

Infrastructure is another important aspect for the development of a country, because it has a great influence both on the economic and on the social field. Only with the existence of well developed infrastructure system with good transportation possibilities, access to utilities and communication and information possibilities the economy can grow. Besides this, it also influences the people and their living standards. Moreover, only by a good access to communication and information means, the inhabitants of a country can have access to education. Not less important is the transportation system, without which the children can not go to school.

The performance measurement system for the evaluation of the infrastructure depends on the categories which were presented above. For the transportation system there are indicators like the number and the length of the highways or national roads, the length of the railway system, number of airports or harbors. These indicators can be analyzed in their absolute value or related to the surface of the country or region or to the number of inhabitants. For the utilities it also evaluated the quantity and the quality of them. Besides this, it is also important to measure the percentage of the population, who has access to utilities. For the communication and information means it is also analyzed the number of people who have access in a traditional way to the public libraries and media and in a more modern way the access to the internet. All these elements show the development of a country.

4. Conclusions

In order to analyze if a system is well implemented, it is important to measure and monitor its performance. Depending on the results of the performance of the activities, the manager can take several measures in order to improve it and eliminate the dis-functionalities. In the sustainable development of a country or a region, it is also important to permanently monitor the performance of the elements of it. It is important that each of the factors should develop in a proper way, but without affecting in a negative way the other ones. As mentioned before, there should be a balance between the six elements: economic development, population, education, innovations, infrastructure and environment. These indicators are a very good prevention model and by analyzing them in time, a country can avoid the development in the wrong direction.

The actual financial and economical crisis will have a negative impact on Romania's economy but it must not affect its sustainable development. Although a negative trend will be difficult to be avoided, the government of the country must apply several measures in all these six directions in order to assure the long term success of it. Even in time of crisis these elements should not be neglected, because this could cause severe negative effects that might effect the future generations.

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