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Foreword

'The crisis is a wake-up call, the moment where we recognise that business as usual would consign us to a gradual decline, to the second rank of the new global order. This is Europe's moment of truth. It is the time to be bold and ambitious', said José Manuel Barroso in 2010. The statement emphasizes the fact that EU should take action, as the European leaders have reached a common conclusion on the lessons to be learnt from the crisis, and they agreed upon the need for a long-term strategy to achieve a sustainable growth. The Europeans also share a common sense of urgency on the challenges lying ahead.

In this context, it is clear that the strategic planing is crucial for any organization, economy or nation. It means to set up SMART objectives, to develop annual plans of activities and, of course, to allocate resources in a pertinent quantity and structure. The strategies at the macro level involve a lot more, namey a carefully conducted economic analysis, the harmonization of the national strategic priorities, a search for available resources of all types. The European Union has carried out the aboev and adopted its own strategy for the Horizon 2020.

Europe 2020 is the European Union's ten-year growth strategy, which is more than just overcoming the crisis that continues to afflict many of our economies. It is about addressing the shortcomings of EU growth model and creating the conditions for a different type of growth that is smarter, more sustainable and more inclusive[1].

The Europe 2020 strategy deals with delivering growth that is ***smart,*** *via more effective investments in education, research and innovation;* ***sustainable****, thanks to a decisive move towards a low-carbon economy; and* ***inclusive****, with a strong emphasis on job creation and poverty reduction. The strategy is focused on five ambitious goals in the areas of employment, innovation, education, poverty reduction and climate/energy*[2].

[1] http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/index_en.htm
[2] COMMUNICATION FROM THE COMMISSION EUROPE 2020 - A strategy for smart, sustainable and inclusive growth, Brussels, 03.03.2010

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Every strategic priority aims at specific and attainable targets to hit and one of them is investing at least 3% of EU's GDP in R&D, as well as creating better conditions for research and innovation.

The EU economic model is emphasizing the need to build a sustainable growth for efficiency of resources, a greener and more competitive economy. It is time for the scholars to shift their research to upholding the sustainable growth, promoting practical solutions and involving in a real partnership with the industry, in a common R&D effort.

The JEDEP current issue presents the sustainable economic development in the transition countries, the coordinates of the environmental management and its application in the Republic of Slovakia, the sustainable quality of work, the life and job satisfaction and other interesting topics that I warmly recommend to our readers.

Your opinions and comments are important to us and we intend to insert them into a special JEDEP webpage, which will host your valuable feedback.

Prof. Manuela Epure, PhD
Editor-in-chief

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Sustainable Economic Development in the Transition Countries, With a Retrospect of the Republic of Macedonia

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Abstract.
Sustainable development represents a civilization challenge that should meet the needs of today's generations without jeopardizing the ability of the Earth to meet the needs of the future generations. This challenge, as an evolutionary process in which the social and economic development and the environment protection are independent, but mutual complementary components demands the solving of several issues

The vision of sustainable economic development is based on the historical, cultural and political development of the countries. There is no unique way of sustainable development for different countries and therefore they cannot be made in the same way.

The transition toward sustainable development represents a social choice that connects the global vision of the local needs and goals. The citizens must participate in the process of sustainable development. They must recognize the role they have in creating problems and finding solutions.

In order to gain a general frame for the assessment of sustainable economic development it is necessary to integrate several methodologies and approaches toward the possible future generations for a quality and healthy life.

One of the ways of assessing the results from the policies and the activities is the use of the principles and indicators according to which it is determined how much the countries work on sustainable development. Parts of the indicators are generally accepted, and part are in a modeling phase. A systematic approach is necessary to see whether all indicators are necessary, and which of them are necessary for the assessment of sustainability. The economists do not have problems in executing the objective and quantitative indicators. The sociologists are facing many problems in the execution of indicators because of the immateriality of the life quality. However, the environment experts see problems when they are limited in the execution of indicators.

Sustainable development is much more than a mutual connection between the economy, the law and the ecology in establishing relations between the indicators of sustainable development and the economic development are the basis for creating conceptual link between the different approaches toward sustainable economic development.

The aim of this paper is the implementation of today's relevant experiences, practices and theoretical knowledge expressed through the changes that are reflected in the life in the Republic of Macedonia:

- *Protection of natural resources*
- *Sustainable production and consumption*
- *Sustainable sources of energy and*
- *Following and reporting about the conditions, supported by the following indicators:*
  - Level of citizens' involvement in the social activities
  - Number of companies that have an ecological strategy
  - Number of people involved in the planning process
  - Number local communities in the Republic of Macedonia, which are eco-logically oriented

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- Number of shops that sale home food and organically developed food
- Number of companies for organic production
- Renewable sources of energy in the Republic of Macedonia
- The level of nitrogen dioxide in the atmosphere

The elaboration of the final material will go through the following principles: Participation of local citizens. Key segment of the implementation of the Agenda 21; Short-term plans that support the municipalities that environmentally oriented; Local production, which is forced whenever possible;

The oil, coal, gas, water should be saved and renewable sources of energy should be used instead.

Keywords: sustainable development, economic development, transition, process of evolution, changes, indicators, principles, natural resources, sustainable production, sources of energy.

JEL Codes: O, O13, QO1

1. Introduction

The sustainable development is the fundamental goal of the European Union. This concept is one of the main aims of the European integration. Sustainable development is not just about protecting the environment. It is about securing economic growth, social cohesion and protection of environment, which go hand in hand. This is the core of the European model of society that we want to strengthen and preserve for the following generations. The economic, social and the goals of the environment are not contradictory, there are complementary. The strategy for sustainable development is essential for securing balanced, righteous and sustainable society in Europe. We Europeans are rightfully proud of our social model, but we have to modernize it, so that it can be functional for the future generations. It must become a model that we can offer with pride to the rest of the world. At the end, the future or the planet depends on the global sustainable development, and the best way to promote it is for Europe to practice that what it declares and to lead by setting an example[1].

2. Economic parameters of sustainable development

The economic parameters of sustainable development should be aimed toward several aspects. However, together with the sustainability of the development, as an economic category, there are three aspects that occur and through which the sustainable development, as well as the sustainable usage of renewable and unrenewable resources should be proportioned. Here I will list its main aspects:

- Economic development opposed to sustainable development;

[1] Romano Prodi, President of the European Commission, European Parliament, Strasburg, 2001.

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• Financial support for the abstention of economic development, as an advantage to the sustainable development;

• The usage of natural renewable and unrenewable resources as a material dimension.

These three aspects are positioning the economic dimension that determines the sustainable development, not just in the context of creation of political attitudes regarding the environment, but as well in the context of all economic, social and environmental parameters. This determines the promotion of the economic and social advancement of the citizens, where as the basis we take the principle of sustainable development. However, this creates a model for mutual approach and integration that is based on mutually supportive parameters for stabile economic growth, social development and environment protection.

The economic parameters for sustainable development must be based on the developmental program, which will be aimed at achieving:

• Political stability of the development; safe economic conditions; social cohesion; and sustainability of the environment.

On the ground of the above stated economic parameters for sustainable development, it is necessary to include percentages that will give dimension to the procedure of preparing national strategy for sustainable development and thus through:

• Assessment of the influence the sustainable development has on the domicile economy;

• Creating strong internal coordination between the ministries, the sectors and the state institutions;

• Development of national plans for sustainable development.

The contribution of each economy on the sustainable development is to follow the global characteristics through establishing wide-ranging and integrated collection of activities and their establishing. These activities mainly encompass the three mutually connected components of sustainable development:

• The economic component of sustainable development;

• The social component of sustainable development; and

• Environment.

In order to fulfill the tasks of the three mutually connected components, few preconditions are necessary for the implementation of the same parameters:

• Increased coherence in the approach;

• Improved management, leadership;

• Increased financial resources for the implementation of the necessary sustainable development;

• Development of leading structural indicators for sustainable development (headline);

• Managing natural resources.

The analysis of the abovementioned goals raises a significant question: What should be done regarding all these issues, all these directions, how should they be implemented up to different degrees by the national economies, and this partially because of the different starting positions, and partially because

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different levels of reluctance to accept the changes? However, the Republic of Macedonia signed the Stabilization and Association Agreement with the European Union, where in article 80, paragraph 2, page 42 is clearly stated: The policy and other measures should aim at establishing economic and social development of the Republic of Macedonia. This kind of policy should form the start care that the environment is incorporated and connected with the demands for steady social development. With this the Republic of Macedonia made a determination for economic and social development and care about the environment, which main aspect would be the securing of sustainable development.

The sustainable development as a process must rest on the basic civil rights and civil society, be compatible with the human rights and duties, depending on the social status, education, age, sex, culture etc. In this context, the sustainable development must the product of economic development, social development and environment protection, of their mutual interdependency and achieved compatibility.

The respect toward human rights and freedoms, within the democratic processes, as the basis for development, publicly and responsibly manages all sectors and resources of the state, the open partnership and efficient participation of the citizens in the public life, with a necessary dose of personal and collective responsibility and interactive behavior of the second dependent factor for establishing a process of sustainable development of renewable and unrenewable natural resources.

Basically, the sustainable development must be defined as an economic development, which is environmentally acceptable, at the same time socially responsible and timely established with clearly planned usage of natural resources, as a basic pillar, around which responsibly and solidly gravitate citizens, with environmental sense, management and knowledge about healthy environment and applicable sustainable development.

The elaboration i.e. the range of the sustainable development demands active attitude towards all actors of the open partnership, regarding the realization of a big project, which determines the right place and relation in the home economy of each participant, but also within the global strategies that lead the world family of states toward the realization of special projects which will be the foundation stone for the future integration of the Republic of Macedonian in the EU. The elaboration, implementation and introduction to the democratic public of the achieved results must go in the following directions, where the dominant role for establishing sustainable development will fall on areas such as:

- Economic and technological sustainable development; Protection and promotion of the environment; Concentration and exploitation of natural resources; Demographic processes, development, management of human resources; Social security, health protection; Local and regional development; Legal and administrative measures for sustainable development; Sustainable development education; Public and medium availability regarding the sustainable development.

The issues and tasks that arise in front of all actors of the social development in the creating a society with sustainable development can be demensionalised in several areas, such as: the economy of the Republic of Macedonia in a state of foreign transition, financial markets, quantitative and qualitative analyses, quality of the economic and human development. The relevant indicators, through which we can

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see and process the sustainable development, are expressed in four points of economic, environmental, social and institutional indicator. Determinates that determine the sustainable development are: the nature, righteousness and future:

The nature any production system should be considered as its integral part and not be treated as a free asset. The production systems are connected in a material chain and the first production system always gets a raw material from the environment.

The righteousness is a second important determinant in the sustainable development that determines the place of the producers, as well as of the consumers regarding the exploitation of natural resources. The righteousness demands returning of all elements used from the nature in increased levels for the development of our own economies, through finical support of the economies that are in stagnation and the social stratification is strengthen, as well as the health and environmental problems. The principles number 5 from the Declaration from Rio emphasizes that all states and all people must cooperate in respect of the important tasks for eradication of poverty, as a necessary prerequisite for sustainable development in order to reduce the differences in the standard of living and to better suit the needs of most people in the world.

The future as a determinate of the sustainable development calls upon the society, the companies, the managers and individuals to take regard of the time to come. This especially applies to businesses that in the race for efficiency, effectiveness, competitiveness and profitability, forget about the future and the sustainable development. The developmental policies must be proactive instead of reactive.

3. The concept of sustainable development

During the last decade the concept of sustainable development started to attract the attention of the scientific and wider public. Because of the long-term harmonization of the economical processes and the tempo of the processes in the environment, the concept of sustainable development is understood as a development that is in accordance with today's possibilities and needs, without harming the needs of future generations.

The appearance of the concept of sustainable development is a consequence of the collected information in the area of natural sciences that find their application in the economic processes. An example is the size and rate of the material and energy. There is a shortage of the so called existential theorem in the economy and the environment. This is especially noticeable during the maturation of the sense for subtle mixture of determining parts.

The living organism, among which the human, are becoming more and more interested is the reason for their natural surroundings. Therefore, the development in the area of economy represents a process that is adjustable to the demands of the environment.

The science gives compromises for the sustainable development in the form of indirect insisting regarding the real meaning of the term development. The same cannot be understood as a single and unique type of growth.

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This applies most of all to the structural principles in the economic sphere, but also in the society as a whole, which are brought by the economic development. Also other latent advantages that are result of the economic growth (in the area of social welfare) are emphasized, not just the growth of income per capita. That actually regards the issue about the scope of the term standard of living, of course by insisting on its wider exploitation, i.e. it clear that it cannot be defined in a single way just as a real income per capita[2].

The practical approach and realization of the concept of sustainable development from the aspect of environment management demands showing respect for two principles, accepted as basic, that should always be respected:

- Using independent renewable functions of the environment as sources of resources, this should be developed according to regenerating principles of specific natural resources;

- Maximizing the optimality and rationality in the exploitation of unrenewable natural resources;

The concept of sustainable development is moving toward the exploitation of the permanent reserves of natural resources and the environment's power of absorption. Specific digressions are also appearing regarding the basic premises of the concept. The concept also has a weak side. That is in a way a second premise. A potential argument regarding the viability of the concept is noticeable. The demands regarding the integration righteousness of the concept of sustainable development could not be met by conventional theory of utilitarism. According to the libertarians, as supporters of the free will, they cannot answer the requested principle of sustainability. According to them each activity is justified if is legally based. Today's generations can use the use the environment in the most acceptable way.

The future is always subjected to depreciated attention because of the fact that future generations hold only a temporary position in view of the current generations. On the other hand, current generations always pay greater attention to fulfilling their own needs and they know very little or at all about the needs of the future generations[3].

Specific remarks can be made regarding the implementation of integration righteousness. All people have the right to equal treatment. The basic human needs should be pleased.

The degree to which future generations can be compensated for the damages from the present is very relative. This is because the damage cannot be fully revoked. The usual economic approach in this respect is traced upon the thought of Jeremy Bentham how believed that damage would be reversible with the

[2] David W. Pearce. Kerry R. Turner. Ibid., p. 43.

[3] Subjective depreciation of the future in comparison to the present in the eyes of every men is a fact to which even A. S. Pigou. He clearly point that for people the present has a greater value than the future. This comes from the fact that satisfaction of a specific need in the present is much more real the same in the future. Therefore, the ever present dose of uncertainty, when analyzing future development trends, should not be surprising, and in that context the concept of sustainable development.

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help of the good[4] . Hence, the Pareto Criterion allows for creating damage (in this case pollution), but immediately afterwards there should be compensation by relocating the resources. It is clear that the damage and the compensation in this case are seen as equal. However, if put the simple mathematical calculus aside, it is clear that from moral aspect this must not always be the case. On the contrary, the damage remains despite the good done, and the good cannot justify the damage. If individuals pay in order to have straight road that would spare two lives a year, then it inconceivable to think that by killing one motorcyclist a year can simply be perceived as an improvement[5].

This problem is mostly found in cases when there is involvement of the right to live, but his can be expended in other situations as well. However, here arises an implicit argument that very often provokes flaming discussions regarding the paternalism from the government[6].

In this way the concept of sustainability can be placed on the terrain of righteousness between the generations (present and future). Future generations can be put in situation to deal with endangered environment, as a result of the activities of the present generations, where the degree of disruption of the equilibrium can reach the extent of no reparation. In order to evade such situations, as optimal can be accepted the so called agreed approach, which actually represents hypothetical agreement between the current and future generations regarding a behavior toward the environment that will be obligatory for all, and will be based on John Rawls idealized model of decision making, coming from his veil of ignorance. Rawls's veil of ignorance does not allow the rational individuals, representatives of the modern social communities to discover their own privacy on separate levels, creating in this way preconditions for reaching fair decisions. Still it seems that this kind of decision making is not based on firm foundation. The dual nature of the Rawls's theory, the righteousness as a rational cooperation and the righteousness as a universal hypothetical agreement, arouses conflict as soon as the analysis is moved forward from the modern social societies. In the context of integration, if all generations are represented in their original position, then the representatives themselves could calculate how many generations will there actually be. However, this is one of the questions that to some point depend on their reasoning[7].

The striving toward a higher standard of living, as an imperative of the future, as a final limit, in the sense of better life for future generations is constant. The issue of violating the right of the future generations is constantly present. The institutional circumstances are those that determine the frames of establishing rights and raising the issue of damage compensation. The graduate relaxation of the scientific

[4] Clive L. Spash. "The political Economy of Nature". Review of Political Economy, volume 7, Number 3, July, 1995, p. 282.

[5] Clive L. Spash. Ibid., p. 282.

[6] This often promoted thesis by the critics of the regulation, according to which each state with its behavior manifests signs of "concerned parent" for its children (in this case citizens), constantly averting them from a specific activity.

[7] David W. Pearce. Kerry R. Turner. Ibid., p. 236.

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thought is in line with the natural laws as limiting elements. The future is in the resources of goods and services. In this way we can reach a full appreciation of the individual personalities and the affirmation of their individual preferences.

Each generation should leave to the future generations a healthy environment, not just through preserving the resources, but also through furthering the technology and innovations. In this way we will slow down the reduction of resources, we will protect the environment from pollution and have easier approach to new resources.

4. Conceptual link between the principles and indicators- research

Sustainable development is much more than a mutual connection between economy, law and ecology, in the determining of relations between the indicators of sustainable development and economical growth it is the basis for creating a conceptual link between the different principles that in the research conducted by Prof. Mirko Tripunovski in 2005 conducted on 1200 respondents, confirmed with more than 200 identical responses are explained through the following analysis:

Following the principle **that the participation of the local citizens is crucial for the implementation of the Agenda 21,** we are analyzing the indicator for the **level of involvement of the citizens in the social activities of R. Macedonia.**

According to the Agenda 21, the development must be sustainable and most of the activities of the Rio Earth Summit in 1992 should be implemented on a local level, through the cooperation of individuals, the social and local government. The success of the whole process is achieved through the involvement of the local population that states its own agenda, which could probably happen in an active, dynamic society where local opinion is valued. According to the researches of the population of the R. Macedonia it can be concluded that there is a small change in the number of people that are actively involved in social activities, with 35% fairly involved in the local activities. Most of them, one fourth are involved in charity work, while one fifth are members of the local interest groups.

The issue of how people communicate in local societies is considered very important, as a positive effect on people's health and their existence. According to the research, designed to measure how much people are kind to their neighbors, three fourths of the people believe in their neighbors and help each other and most of the population want to and feel good living in their neighborhoods. West and east of Macedonia are considered as a negative example and antagonism of economic and rural development.

The short-term plans should have a positive impact on the long-term ones, as a principle it determines the indicator, **what is the number of companies that have an environmental strategy.**

The business has a big role in the local society and as such it can have a great influence in order for the society to be stabile. As a result of the need to plan ahead, the sustainability demands from the organizations to try to minimize their negative effects on the environment. One way of achieving this is to form and adapt to the environmental strategy. There are also long-term plans that measure the potential impact of the activities and enable a set of "rules" that can help in reducing that impact. For example, the

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obligation of buying goods from the local distributors will influence the reduction of transport and packing, as well as on the support of the local business. Very important part of the strategy is that the influence should be measured periodically in order to be sure that the organizations are moving in the direction of sustainability.

Additionally to the flotation of the last 6 years, the percentage of business with environmental strategies has a fall of 6 %, which means that less than half of the businesses have adopted those strategies. However, the percentage of food stores that have environmental strategy has a significant increase of 12 %. As a result it is hard to say whether it is a positive or a negative step, despite the decline, the percentage of business that have a strategy is higher than those of the food stores. Without looking into the environmental strategies of the companies individually it is hard to estimate whether the level of the company's commitment.

In the period 2000-2011 there were some reactions in Macedonia regarding the indicators through which it had contact to the businesses in the R. Macedonia. Those companies that answered positively received a detailed material that they should implement and execute the environmental policy. Even despite the fact that there is no feedback regarding all this, it is considered that the delivered information regarding the policy is not complicated at all and only a few changes should make dramatic differences in respect of the ecological performance of the companies.

The decision making and the planning should include the local citizens as principle confirms the indicator of how many people are involved in the process of planning and whether the citizens are interested in the involvement.

The democratic processes can be really effective if the people are given divided responsibility for decision making and planning. This participation promotes the sustainability through allowing for a development of closer relations and partnerships within the frames of the municipality and the need of local knowledge can result in the most effective decisions. The centralized planning may not recognize the local needs, culture and tradition and in order to maximize the involvement of the democratic process can be easily acceptable and capable of incorporating the opinions of the municipality and the local self-government.

Since 2005 the percentage the people of the R. of Macedonia that would consider contacting the Municipality Council, Local Community Council, and their local council has increased. 74% would contact the local self-government, 67% the local community and 61% their local council.

The percentage of the local population that thinks that the municipality council, the local community, their local council was really interested in their opinions has increased since 1990. The most important changes happened regarding the local council, from 15% to 31% and the municipality council from 19% to 34%.

It is possible for these indicators to be wrongly interpreted because people strive to come more closely to the authorities regarding the planning of single problems, rather than being involved during the whole planning process of the municipality.

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The politicians should support the municipalities that are environmentally oriented as a principle that corresponds **to the indicator of the number of local communities in the R. of Macedonia, which are environmentally oriented.**

The summit in Rio in 1992 presented the Local Agenda 21 with the recommendations that the local authorities should work with the municipalities in order to create strategies on local level that will collectively oppose to some of the main global problems in respect of the quality of life in the 21st century, such as poverty and climate changes. This has shown to be a problem for many authorities, some have ignored the Agenda 21, some tried to create a strategy with a minimum involvement of the public, while some were involved in some processes of entrepreneurships using innovative techniques in order to involve their municipality. In the R. of Macedonia the process was eased through and independent organization of the municipalities, which had the possibility of setting strategies, indicators and priority actions.

In 2005 it was confirmed that there are no policies for the municipality council or the local community councils that fulfill the clearly defined criteria of sustainability even though specific document, such as the local plan, refer to the problem of sustainability. Up until 201 both authorities recognized the importance of sustainability and that what is made in this respect at the highest level of the corporative plan of the local communities and the strategic plan in the municipality council. Within the following years, the government's reform brought the incorporation of the sustainability principles within the frames of the strategies of the municipality that should be built with a local consultation. The last report about the indicators expressed a concern that this leads to many authorities diverting their recourses from the Local Agenda 21 to the planning process of the municipality, which is supported by a forum of representatives from the state agencies, rather than the municipalities itself. The municipality planning process in the R. of Macedonia should still engage the municipality.

The corporative plan of the local community is now incorporated in the best performance plan of the council and the sustainability is no longer expressed as one of the corporate priorities of the council. Still, all big reports should go through the municipality council in order for their influence on the sustainable development to be investigated.

The local production should be forced whenever possible, as a principle, **it seeks an answer to the indicator for the number of store that sells ecologically produced food.**

The consumption of the local produced goods helps in the reduction of damage on the environment provoked by the transport, and in the same time it stimulates the growth of the local economy. The great distance of the traveling of food, defined as a destination in which the food travels from the field to the kitchen, is increased with the increase of the demand of different types of food during the whole year. Additionally to the ever more obvious impacts provoked by the transport, the food the travels long is often hard to process, pack or chemically protect. The irony is that many products from this country are simultaneously being imported from other parts of the world. The import from less developed countries can encourage the production of products for profit for the price of the traditional food product. This can lead to negative effects on the economies and the environment of these rural municipalities.

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Since 2010 the percentage of stores that sell local products has increased and now almost all food stores in the R. of Macedonia sell at least one local product. While some stores emphasized that only some of their goods are local, other, such as the butchers, emphasized that a great percentage from supply is from a local source. Additionally to the local stores, the markets of agricultural products encouraged the producers to sell their goods directly to the consumers in their surroundings.

The activities that pollute the land, water and air should be stopped whenever possible, as principle that analyses the indicator **of the percentage of level of the azoth dioxide in the atmosphere.**

The quality of air contributes to our health and good condition, as well as for the protection of the biologic al diversity. The people have the right to expect that the air they breathe won't harm them. The hydrogen dioxide (HO2) is the biggest polluter of the atmosphere, where the basic source for it is the road transport. The high levels are a threat to the human health and can increase the production of other polluters, including the low ozone and acid rain.

At the moment R. of Macedonia is monitoring the HO2 on several places in several cities, because that is the easiest and cheapest indicator that can be monitored.

The activities that pollute the water and air should be stopped whenever possible as a principle we analyze it through the indicator for the number of companies for organic production.

The agriculture has a significant effect on the economic, natural and social environment of the R. of Macedonia. The extent of exploitation of chemicals together with other realizations evoked a significant concern regarding the potential long-term effects of the human health and environment.

Last year the area of organic land in the R. of Macedonia was almost doubled, but we still import 70% of our organic food compared to the import of 10% of France. The government demands that the import be reduced to 30% until 2010, however the number of organic cultivators that had loses has increased in the last five years, the sustainable agriculture demands creating an action plan in order to achieve this goal, with new payment schemas for the cultivators, new means for researches and supermarket chains should start working with the producers from R. of Macedonia.

The oil, coal, gas, water should be saved as principle it analyses **the indicator for renewable resources and sources of energy in the R. of Macedonia.**

The nature of the fossil fuels, such as the coal, oil and natural gas, will inevitably be spent and the renewable energy will become part of the main sources of energy in the world. The carbon dioxide and sulfur dioxide are produced when the fossil fuels, such as coal and natural gas, are used and this leads to the world threats for the environment, from global warming to acid air. The extremely long time of the toxic waste decomposition and the fear of accidents in the nuclear power station made the nuclear power controversial alternative source of energy.

The goal of the government is 10% of the electric energy in the R. of Macedonia to be produced by renewable energy until the end of 2010. At the moment only 3% come from renewable sources. R. of Macedonia is the windiest country in Europe and the government allowed for two groups of mountain windmills. Each of them is big enough to produce electricity for more than 50.000 homes of medium size.

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The proposal for two 1.3 MW windmills in Hedfild Shtip, which would have the capacity to produce enough electricity freed from polluters for approximately 1600 homes is still in the planning phase.

5. Conclusions

The short-term plans should have a positive impact on the long-term ones, as a principle it determines the indicator, what is the number of companies that have an environmental strategy.

The decision making and the planning should include the local citizens as principle confirms the indicator of how many people are involved in the process of planning and whether the citizens are interested in the involvement.

The politicians should support the municipalities that are environmentally oriented as a principle that corresponds to the indicator of the number of local communities in the R. of Macedonia, which are environmentally oriented.

The local production should be forced whenever possible, as a principle, it seeks an answer to the indicator for the number of store that sells ecologically produced food.

The activities that pollute the land, water and air should be stopped whenever possible, as principle that analyses the indicator of the percentage of level of the azoth dioxide in the atmosphere.

The oil, coal, gas, water should be saved as principle it analyses the indicator for renewable resources and sources of energy in the R. of Macedonia.

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Environmental management and its application in the Slovak Republic

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Abstract. *The Paper aims at implementation of environmental management in the condition of Slovak Republic. Systems of the environmental management represent the mean of practical realization of environmental requirements, competitiveness indicator, tool of the sustainable development support and acknowledgement of good environmental behavior by regulation of the business activities impacts. Standard scientific research methods included synthesis, analysis and comparative method.*

Keywords: environmental management, EMAS, EMS, Slovak Republic

JEL Codes: Q56, Q59, O13

1. Introduction

Ongoing globalization process has different meanings. Globalization is a process connecting people, places, institutions and events in the world. Globalization is a growing tendency directing to the achievement of the unified network of the cash flow, human resources, products and ideas. It is worldwide distribution and interaction of the economical, political and cultural processes.

The term globalization is generally used to describe an increasing internationalization of markets for goods and services, the means of production, financial systems, competition, corporations, technology and industries. Amongst other things this gives rise to increased mobility of capital, faster propagation of technological innovations and an increasing interdependency and uniformity of national markets.

Environmental criticism is based on the finite resources and environment. It mentions several facts. The most important are regional disparities as a result of globalization. Increasing interest in an environmental issue has disclosed deficiencies and faults in practicability of the environment issue. It has reflected by nature of the making decision process and approaches of the practical solution of the environmental problems. These have been considered as a regional but nowadays we focus on them as on global ones.

The most serious global environmental problems are:

- global warming
- weakening of the stratospheric ozone layer

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- acidic atmospheric deposition
- biodiversity threats
- soil degradation
- water contamination
- waste production.

Based on the rapidly worsening situation in the environment the relationship among the man and the environment has changed during the last decades. Many documents have been ratified. They have resulted from the praxis and they have become the basis for management concept of systemic policy and environmental management as well as many national and international activities.

The interest in the environmental performance of organizations is continually increasing. Taking a proactive approach to environmental challenges is now the hallmark of successful organizations.

2. Environmental Management

Management represents the file of the voluntary environmental policy tools that enables the implementation of the systematic approach to the solution of the environment protection problems by the application of the environmental innovations of the firms.

The most important tools are:

- environmenatl management systems acoording to the standard ISO 14 001 (EMS) or acording to the EU Eco-Management and Audit Scheme (EMAS)
- system of the environmental management of the supply chain
- environmental accounting
- environmental reporting
- environmental audit
- life cycle assessment (LCA)
- materials flow statement
- environmenatl communication
- „green Office“

2.1. EMAS

The EU Eco-Management and Audit Scheme (EMAS) is a management instrument developed by the European Commission for companies and other organizations to evaluate, report, and improve their environmental performance. EMAS is open to every type of organization eager to improve its environmental performance. It spans all economic and service sectors and is applicable worldwide.

Currently, more than 4,500 organizations and approximately 8,150 sites are EMAS registered worldwide; among them are many multinational enterprises, smaller companies as well as public authorities.

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EMAS is a voluntary tool available for any kind of organization aiming to:

- Improve its environmental and financial performance;
- Communicate its environmental achievements to stakeholders and society in general.
- EMAS' distinctive key elements are **performance, credibility and transparency:**

PERFORMANCE: EMAS is a voluntary environmental management instrument based on a harmonised scheme throughout the EU. Its objective is to improve the environmental performance of organisations by having them commit to both evaluating and reducing their environmental impact, and continuously improving their environmental performance.

CREDIBILITY: The external and independent nature of the EMAS registration process (Competent Bodies, Accreditation/Licensing Bodies and environmental verifiers under the control of the EU Member States) ensures the credibility and reliability of the scheme. This includes both the actions taken by an organisation to continuously improve its environmental performance, and the organisation's disclosure of information to the public through the environmental statement.

TRANSPARENCY: Providing publicly available information on an organisation's environmental performance is an important aspect of the scheme's objective. It is achieved externally through the environmental statement and within the organisation through the active involvement of employees in the implementation of the scheme. The EMAS logo, which can be displayed on (inter alia) letterheads, adverts for products, activities, and services, is an attractive visual tool which demonstrates an organisation's commitment to improving its environmental performance and indicates the reliability of the information provided.

EMAS Institutional provision in the Slovak Republic:

- Ministry of Environment of the Slovak Republic – coordinator of the section of Eco-Management and Audit in the context of the revised Regulation (EC) No 1221/2009 of the European Parliament
- Slovak National Accreditation Service – national accreditation organization performing an accreditation of the environmental verifiers and supervision of their activities
- Slovak Environmental Agency - professional organization of the Ministry of the Environment of the Slovak Republic (MoE SR) with nationwide scope of powers, which focuses on the environment protection and landscape planning in accordance with principles of sustainable development

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Table 1: List of Slovak companies registered in EMAS Register

Registration number	Organization	Date of registration	Validity of the environmental statement
SK - 000008	Gold-Pack spol. s r.o., Beluša	23.07.2013	17.05.2016
DE-158-00016	Schaeffler Group INA Kysuce, a.s., Kysucké Nové Mesto INA SKALICA, spol. s r.o., Skalica	14.03.2013	31.07.2015
SK – 0006	SEWA, a.s., Bratislava	01.11.2008	13.05.2015

Source: Slovak environmental agency, 2013

The List of organizations established in the Slovak Republic is registered in EMAS Register - an online database hosted by the European Commission which lists all EMAS registered organizations and sites. Slovak companies listed in EMAS Register are mentioned in Table 1.

2.2. EMS

It is voluntary tool of the environmental management in the organization, established to manage its important environmental aspects and to achieve conformity with legal requirements. It involves organizational structure, planning, liability, processes, procedures and sources for the preparation, application, review and maintenance of the organizational environmental policy. It enables then achievement and systematic management of the organizational environmental behaviour. It is generally used management principle that links environment protection approaches with the total organizational management aimed to achieve environmental and business goals.

EMS is usable for any type of organization in the industry, agriculture, services, health service, trade, financial sector or in the government.

EMS Benefits can be found in these fields:

Economical benefits

- Energy saving
- Water saving
- Waste minimization
- Economical use of raw materials
- Recycling
- Costs overview and monitoring
- Minimization of the environmental fees and fines for pollution
- Reduction of the cost of insurance

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Benefits for the organization management

- Tool for the data acquisition needed for planning
- Means of the objective assessment of the business environmental performance and efficiency of the adopted measures
- Minimization of the environmental emergencies risks
- Organizational ethics increasingr
- Environmental problems and risks overvies and monitoring

Relations with employers

- Reduction of the negative impacts on the employers
- Increased involvement of the employers into the environmental management process
- Environmental knowledge formation

Public relations

- Valuable tool of the communication with interested groups
- Organizational image improving
- Good relations with the public and local government

Benefits for business activity and marketing

- Gaining certification as required in Standard ISO 140001 or EMAS represents for businesses competitive advantage in the world market even domestically
- Market opportunities increasing
- Image improving

EMS Institutional provision in the Slovak Republic:

Coordinator of the EMS implementation in the Slovak Republic through the basic and standardization provision is Ministry of Environmnet of the Slovak Republic.

Slovak National Accreditation Service was determined as a national accreditation organ of the Slovak Republic. Number of certificates from the year 1990-2012 is shown in a Fig. 1.

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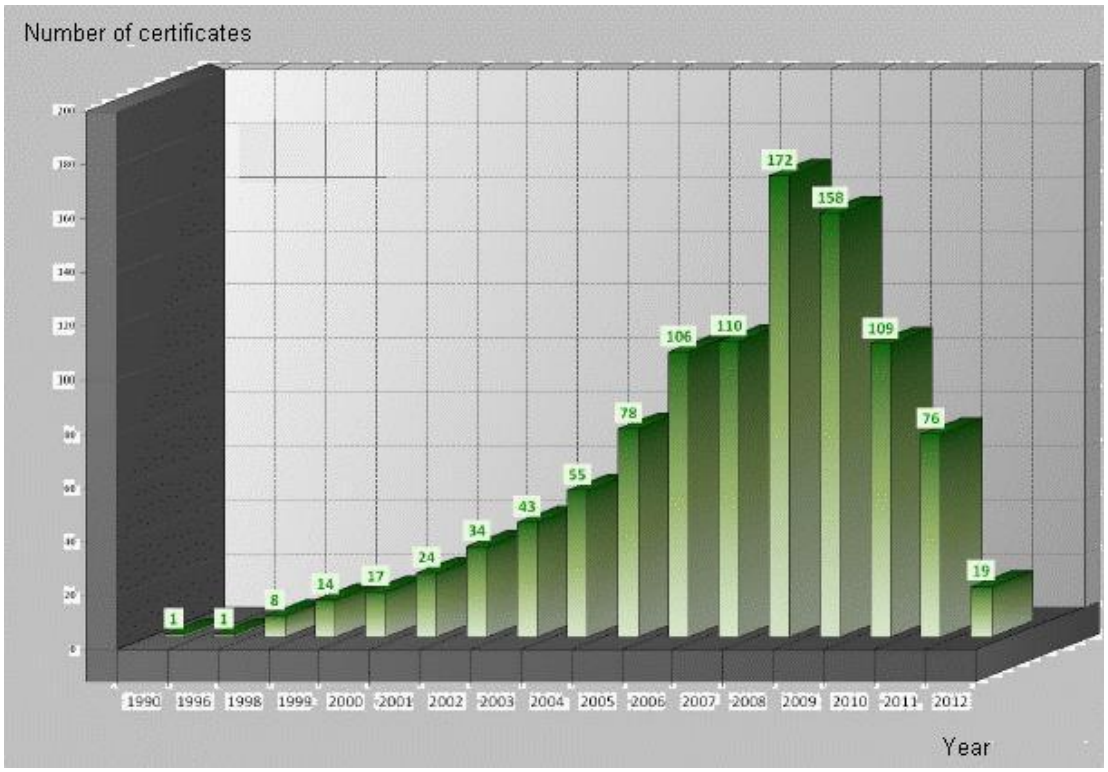

Fig. 1: EMS Certification according to Standard 14001- increase of the certificated organizations
Source: Slovak environmental agency, 2013

2.3. EMAS vs. EMS

Documents resulting from the common principle –to initiate the active approach of the businesses towards the improving of the relationship with the environment. They differ by fact that some system components are recommended by one document and required by another. Both systems are similar and they differ formally. They are used concurrently in one organization only exceptionally. The most important differences in extents and requirements between EMS and EMAS are appointed in Table 1 below.

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Table 1: The most important differences in extents and requirements of EMS and EMAS

Extent	EMS	EMAS
Teritorial operation	worldwide	European Union
Management system	contained	contained
Validity for types of activities	all types	mainly manufacturing industrial activities
Input analysis	recommended	required
Impact register	recommended	required
Environmental statement	not required	required
Competent authority	Not required	Required
Business subject registration	Not required	Required
Audit cycle	undetermined	the longest period of three years
End process management	certification	environmental statement verification, locality registration

Source: own processing according to Environmental magazine and Slovak University of Technology, 2007

3. Conclusion

We cannot expect significant changes in the Slovak Republic in the field of „green“ procurement that would be conditional on EMS introduction at authority and products and services suppliers

Implementation of the environmental managerial systems in the conditions of the Slovak republic is often conditional by relations with organizations and business partners. Businesses that act as subcontractors of the foreign companies are very often bound by duty to implement corresponding quality system as well as environmental managerial system. These businesses are even effective by environmental goals achievement as their relations with partners are conditioned by ensuring the environmental managerial systems quality and by observing corresponding standard of these systems that directly influence the quality of their production and services.

The importance of the EMS implementation however consists of the fact that it enables to create framework rules for the effective organization management as a whole or its individual parts. The other advantage of the EMS implementation in conjunction with other voluntary tools is marketing asset of these systems.

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SUSTAINABLE QUALITY OF WORK LIFE AND JOB SATISFACTION

[AN INDIAN CASE STUDY]

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Abstract. *As HR experts would propound, organizational success is highly dependent on attracting, recruiting, motivating, and retaining its workforce. The quality of work life (QWL) pertains to favourable or unfavourable work environment in keeping employees motivated so as to enable increase per capita productivity. It aims at achieving an effective work place environment that satisfies both the organizational and personal needs and values of employees , promoting well being by job security, job satisfaction, development and thereby helping to maintain a better balance between work and non-work life. The word sustainability is derived from the Latin sustinere (tenere, to hold; sus, meaning up). Dictionaries provide more than ten meanings for sustain, the main ones being to "maintain", "support", or "endure". However, since the 1980s sustainability has been used more in the sense of human sustainability on planet Earth and this has resulted in the most widely quoted definition of sustainability as a part of the concept sustainable, that of the Brundtland Commission of the United Nations on March 20, 1987: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their needs.*

Keywords: Quality of work life, job satisfaction, employee, work environment, sustainability.

JEL Codes: J28, J24, Q 56

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1. Introduction

When change is the market mantra, who thinks of sustainability? This is unfortunately the scenario in peripheral capitalist economies like India and hence we need to define our position at the outset. India is going through a Corporate Olympiad wherein change is on-linear and non Newtonian. The business scenario is marked by the concurrent collapse of structures and functions. Excellence is no longer desirable but imperative. It has to be converted into sustainability for it to be meaningful – if not would remain a colorful rainbow on the horizon that we see but cannot reach What then is sustainability? We will restrict ourselves to the dictionary meaning – to sustain or hold up. This paper attempts to provide some practical insights to enable HR departments to hold up or sustain certain parameters at satisfactory levels to maintain or enhance QWL.

The authors solicited feedback of employee's perceptions and then qualified the effects of quality of work life on employees' attitude, behaviour and performance. The paper thus aims to provide a new insight into current working life policies and practices, as well as suggest strategies to facilitate work-life balance issues of employees. Several notable and commonly agreed factors that influence qualities of work life are: (i) Safe and Healthy Working Conditions; (ii) Adequate and Fair Compensation, (iii) Opportunity to Utilize individual skills and talent, (iv) Develop Human Capabilities; and (v) provide Career and Growth Opportunities.

There is no gain saying the fact that QWL is a key aspect in balancing the relationship between work, non- work and family aspects of life. It is necessary here to qualify the distinction between Qualities of work life in particular and work life balance in general they are many a time used synonymously. However work life balance is a much larger set of which QWL could be a substantial subset. Work life balance involves all aspects of work and lire taken together as on indivisible whole. It is a dynamic concept of engagement in all aspects of living – broadly physical, mental, relational, spiritual and social to say the least. It would be pedantic to assume that all deleterious or beneficial effects in life are largely due to work dynamics alone. In fact modernity has assailed all aspects / facets of the human life - both in being and in existence. With work becoming a dominant and driving factor in modern life, QWL assumes significant importance because of its importance and impact. It can be safely presumed that satisfaction with QWL factors would definitely reduce or at least ease the burden / pressures of modern life
QWL and employee job satisfaction are increasingly being identified as progressive indicators not only to the function and sustainability of business organizations. Sustainable QWL positively correlates with employee job satisfaction at work place in many situations, although not always enables people to develop knowledge, values and skills to participate in decisions about the way organizations do things, individually and collectively, locally and globally,

The HR Interface: HR departments pay attention to the aspirations of employees and evolve strategies to constantly unearth their true potential. Strategies to improve quality of work life are automatically thought about to achieve both organizational objectives and satisfy employee needs. The term Quality of Work Life (QWL) was probably coined originally at the first International Conference on

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QWL at Arden House in 1972 (Chems and Davis 1975). Since then there has been a great degree of professional and academic attention focussed on quality of work life (QWL) as also job satisfaction of employees, both are increasingly being identified as progressive indicators related to the functioning and sustainability of business organizations (Sabarirajan, and N. Geethanjali, 2011).

Satisfaction and contentment of an individual in both work and off work aspects of life are very important in maintaining overall life balance. Quality of working life therefore is an evolved and sensitized way of thinking about people, work and organisations. Accordingly, the thrust is not only on how people can work better but also on how work and all connected with it can motivate them to do better.

Walton's conceptual 1975 model provides eight major conceptual categories relating to QWL viz. (1) adequate and fair compensation, (2) safe and healthy working conditions, (3) immediate opportunity to use and develop human capacities, (4) opportunity for continued growth and security, (5) social integration in the work organization, (6) constitutionalism in the work organization, (7) work and total life space and (8) social relevance of work life. Various scholars and researchers have proposed different definitions and models of QWL which include a wide range of factors.

It is best described as an "overall employee favourable working environment" that fosters, strengthens and sustains satisfaction by providing employees adequate rewards, reasonable job security and regular career growth opportunities (Lau Wong Chan and Law 2001) · Quality of work life has its roots in the theories of Maslow, Herzbeg and McGregor. The needs fulfilment hierarchy of Abraham Maslow's motivational theory of needs are compatible with those of the factors of QWL use your make at. (Sadri, Jayashree and Ajgaonkar 2002).

In general terms, QWL, refers to how favourable or unfavourable are various aspects of the job and its environment for people (Davis 1983). The other techniques like quality circles, management by objectives, suggestion system and other forms of employees' participation in management also help to improve QWL to some extent. Some popular methods to improve quality of work life include job redesign, career development, flexible work schedules, job security etc. Organizations which properly adopt these techniques, may show improvement in Quality of work life be. And rapid radical changes in the world of business, through globalization, use of information technology, business competitiveness, and scarcity of natural resources have changed employee's outlook of how a good company is defined. The trend in past was to include, financial figures in defining "a good company". Latest trends like, ethics, quality of work life (QWL) and job satisfaction are now considered important predictors of sustainability and viability of business organizations (Sheel and Sindhwani 2012, Sadri and Jayashree 2013). More recent works like those of Sadri (cited above) critically look at how HR affects QWL amongst knowledge workers and their paradigms are similar to that taken in this study. Jayashree *et al* 2009, no doubt went further.

Basic Theorisation: Mapping the trend of thought in some definitions we find that some authors had emphasized on the physical factors of Quality of working life such as; basic extrinsic job factors of wages, hours and working conditions, and the intrinsic job notions of the nature of the work itself. He addressed other aspects, such as; fairness and equity, individual power, self development, employee participation in

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the management, social support, use of one's present skills, a meaningful future at work, social relevance of the work or product, effect on extra work activities. Taylor's view is holistic and all inclusive. It implies that QWL concepts may vary according to organization and employee group (Taylor Cooper and Mumford 1979).

For others since QWL was seen as a response to environmental pressures, efforts to cope with such pressures and the resultant dynamics of seeking balance will continue. The nomenclature might change but not the momentum of change will not it was argued. (Gadon 1984). Scholars like Mirvis and Lawler [1984] highlighted the fact that Quality of working life was related to satisfaction with wages, hours and working conditions, describing the "basic elements of a good quality of work life" as well as safe working environment, equitable wages, equal employment opportunities and opportunities for advancement. These appear as a bare minimum in today's hyper expectant world. Following the Tavistock Model, Rice (1985) had focussed on the relationship of work satisfaction with Quality of people's lives. He argued that work experiences and subsequent outcomes can impact person's overall Quality of life, both directly and indirectly through their impact on family interactions, leisure activities and levels of health and energy. Societies are becoming Institution Centric and employees' Organization centric. Work experiences are now a major aspect of individual life most of us. On the other hand Robbins (1989) had stated that QWL is a process through which an organization can relate and respond to employee needs by developing mechanism to allow them to be a part of the decision making processes that design their lives at work. Whilst some scholars have emphasized the psychological well being aspects in QWL, others in turn have identified the relevance of physical factors, work conditions, job opportunities and development. The bias for creating a work environment providing scope for self determination prevalent in this kind of thinking seems impractical when extrapolated to the larger context ,surely many jobs today do not offer this luxury According to Danna and Griffin (1999) Quality of Work Life is a holistic concept that considers both work-based factors such as job satisfaction, satisfaction with pay and relationships with work colleagues, and also includes factors that may predictably life satisfaction and general feelings of well-being. One cannot help but discern the gradual expansion of scope and ambit whereby work satisfaction equals life satisfaction equals satisfaction with life in general. Cascio (2003) on the other hand is more concerned with time and energy spent at work should be commensurate with time and energy devoted to life, thus helping in maintaining family and career balance. He surmised that, efforts must be aimed at enhancing the overall quality of life by shifting the focus from work to life and from balance to quality. This understanding seeks to bring out deeper meaning i.e. purpose and superior essence. Such a definition brings in the element of subjectivity and idealism. Stephen and Dhanapal (2012) argue that people as prime resources constitute the core of the organisation. Organizations more often give greater importance to technology and systems than people. The fact that, it is people who drive technology and systems, in an organisation are not well remembered and even many a times forgotten. While people drive technology, let us accept that higher technology governs people in turn. This process goes on. But what is invariably missed out is the pertinent fact that technology is but a unique commodity that one buys without seeing, since if one sees it one need not buy it. (Sadri 1995).

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In a way, it can be argued on the lines of Walton (1973) that Quality of Working Life (QWL) is a comprehensive construct that includes an individual's overall job related wellbeing and is reflected by the extent to which work experiences are considered or seen as rewarding, fulfilling, devoid of stress and other resultant negative personal consequences. The QWL concern has been increasing due to several factors. These include increase in education level and consequently higher job aspirations of employees; Association of workers to champion their interest, increasing importance of human resource management; Widespread industrial unrest due to dissatisfaction etc. Quality of Work Life refers to the level of satisfaction, motivation, involvement, and commitment individuals experience with respect to their lives at work. It is the degree to which individuals are able to satisfy their important personal needs while employed by the firm. This appears as a balanced and realistic definition rather than a normative one.

Significance of the study: The freight forwarding / custom house agencies carry out work of great variety and complexity. The nature of work requires tremendous coordination with internal and external agencies, government bodies across the world. The modes of delivery range from basic road to ship to aircraft. Myriad rules, procedures, setbacks delays and hurdles are treated as normal; yet speed and quality of service is paramount. The industry engages employees from the lowest loader to a sophisticated global logistic manager. The fact remains that employees drive the service process and delivery systems. Employees are seen as unique and the quality of their relationships as social beings, as belonging to a distinct social system is not overlooked, nor is the organizational culture. In the case of knowledge workers in the IT industry for instance the greatest HR problem was one of retention since attrition levels ranged from 20% to 35% per annum. The alternative suggested to HR was to develop corporate culture that was robust in its values and vibrant in its ethics so that the need to belong was triggered and the attrition levels were kept in check. (Jayashree, Sadri and Nayak 2009). In consonance with that line of thought this paper has examined certain common factors of QWL to gauge the satisfaction of employees towards them. The present study aims at examining the prevalence of QWL factors, as viewed by employees and their satisfaction it. The study has its uniqueness in exploring the perception of employees on QWL aspects, which is not so common.

Objectives of the study: The authors sought to identify important QWL factors by studying employee perceptions on satisfaction towards certain quality of work life parameters. In the process the following hypothesis was proffered for examination and empirical validation.

Ho: There is significant difference between employees' satisfaction and QWL of the employees.

H1: There is no significant difference between employees' satisfaction and Quality of work life.

2. Methodology:

The study was conducted during 2011 -13 on QWL with reference to employees engaged in the freight forwarding and clearing house business in Mumbai based on the pattern of empirical research in management and social sciences.

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Sample Design: The custom house agents and freight forwards are part of an old tradition. This industry is as old as trade and has evolved over time to be a major expediting force in the world of trade: moving goods across borders, ports and open skies. Mumbai being one of the oldest British ports has been the birth place of this trade in its modern form; some of the business houses are over 100 years old and carry the legacy of cultural traditions of the past. The study confined to three companies in this segment. This industry has seen major competitive pressures due to the entry of logistics giants who are truly multinational utilizing the latest in technology and methods.

Most of the firms are privately owned and closely hold hence there is the question of confidentiality which is respected here. They have a reputation for service quality and consistency across several cities in India. They are well known and acknowledged by customers. The sample has been chosen from select freight forwarders who were gracious enough to share information on a confidential basis; despite the industry being unionised.

In all these companies there is job differentiation, yet most employees are multi-skilled i.e. there is job /task variety, yet the range of complexity varies across levels which is taken as a given. Their employees belong to all strata of society with qualifications from SSC to MBA's in operations, IT Accounts, Marketing etc. There is diversity in most aspects. Hence the sample is representative.

Table: 1 Sample selected is according to category of employees.

Sr. No	Category	Total Sample	Completed Sample
1	Managers	25	10
2	Executives / Staff	50	30
3	Field Staff	125	70
TOTAL		200	110

Data Collection: The study was confined to three companies in this segment. The three prime methods used were (i) Survey Questionnaire/ Schedule, (ii) Focused Interviews and (iii) Review of published literature. Further the authors recorded observations during the data collection and also conducted some group discussions, to understand the opinion and attitude of the respondents in general.

Methods of Data Analysis: The data collected with the help of questionnaire, which was given a code and the code book was prepared. The data was fed in excel sheets. With the data of excel sheets, the tables were then prepared, analyzed and interpreted. On the basis of the findings of the tabulated information, and observations during the data collection as recorded by the researcher conclusions were drawn out by the research investigator and certain premises have been proposed on which basis some pointed suggestions have been put for practical consideration

Scope of the study: The present study undertaken between 2011 and 2013 focuses on specific functional areas within specified limits and is restricted to employee satisfaction on QWL parameter among

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the employees of this industry / service. The functional scope is restricted to the Quality of Work life among the employees. The periodical scope of the study is confined to the duration of the research. (table 2)

Testing of Hypothesis:

Ho: There is significant difference between employees' satisfaction and Quality of work life.

H1: There is no significant difference between employees' satisfaction and Quality of work life.

Table2: QWL Factors and the level of signification (P value)

Sr. No.	QWL Factors		Agree	Strongly Agree	Uncertain	Disagree	Strongly Disagree	x2	D.F	Table Value	P value
1	Facilities	All Fringe benefits are provided	87	14	0	9	0				
		All social security benefits are provided						83.9	4	13.27 a=1%	0
2	Adequacy of Resources and proper controls	Resources provided are adequate to achieve targets	49	45	13	0	3				
		Availability of quality equipment and proper control systems	67	33	3	5	2	16.1	4	13.27 a=1%	0.01
3	Compensation and Rewards	Compensation is adequate and fair	36	45	8	13	9				
		Salary is paid based on job responsibilities	63	36	4	6	1				
		Job performance and rewards are linked	76	21	8	2	4	3808	8	20.09 a = 1%	0
4	job satisfaction and job security	I am satisfied with my job	49	56	1	3	1				
		I have job security	78	28	1	2	2	15	4	13.27 a = 1%	0
5	Organization culture and climate	There is cooperation from other departments	55	30	8	10	8				
		Have freedom to offer comments and suggestions	72	32	4	3	0	18.7	4	13.27 a = 1%	0.01
6	Relation and co-operation	There are harmonious relationships with colleagues	42	52	13	2	1				
		The Sense of belongingness increases with cooperation	66	39	4	1	0	14.8	4	13.27	0.01

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7	Freedom to work	Scope for Use of skills and abilities to the maximum level	70	35	3	1	1	16	4	13.27 a = 1%	0.01
		Freedom to implement innovative practices	45	48	12	6	0				
8	Work environment	The work environment is motivating	70	20	11	6	3	16	4	13.27	p<0.00 H. S
		I am satisfied with my working conditions	50	49	7	3	2				

A chi-squared test, also referred to as chi-square test or χ^2 test, is any statistical hypothesis test in which the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true, or any in which this is *asymptotically* true, meaning that the sampling distribution (if the null hypothesis is true) can be made to approximate a chi-squared distribution as closely as desired by making the sample size large enough.

As was calculated the chi-square value of each parameter above was greater than table value. Hence null hypothesis was rejected and alternative hypothesis was accepted which indicated that there is no significant difference between employees satisfaction and Work life balance According to the Wikipedia, in statistical inference of observed data of a scientific experiment, the null hypothesis refers to a general or default position: that there is no relationship between two measured phenomena, or that a potential medical treatment has no effect. Rejecting or disproving the null hypothesis – and thus concluding that there are grounds for believing that there is a relationship between two phenomena or that a potential treatment has a measurable effect – is a central task in the modern practice of science, and gives a precise sense in which a claim is capable of being proven false.

The concept of a null hypothesis is used differently in two approaches to statistical inference, though the same term is used, a problem shared with statistical significance. In the significance testing approach of Fisher, (see Box 1978) a null hypothesis is potentially rejected or disproved, on the basis of data that is significantly under its assumption, but never accepted or proved. In the hypothesis testing approach of Jerzy Neyman and Egon Pearson, a null hypothesis is contrasted with an alternative hypothesis, and these are decided between on the basis of data, with certain error rates. These two approaches criticized each other, though today a hybrid approach is widely practiced and presented in textbooks. This hybrid is in turn criticized as incorrect and incoherent. (Howie 2002)

Concluding Remarks: The present study examined the existence of QWL in select Freight forwarding companies. It revealed that QWL is highly prevalent as per the views of employees. Taking into

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consideration the importance of QWL for people in the organisation, these employers should continue to take consistent and steadfast measures to sustain improve the QWL of employees. Such measures will surely benefit these employers in retaining & sustaining their employees.

Significance of this study and its implications for HR functions in organizations: Traditionally Job satisfaction is seen as how content an individual is with his or her job. Scholars and human resource professionals generally make a distinction between ***affective job satisfaction*** (Thompson and Phua 2012) and *cognitive job satisfaction* (Moorman 1993). Affective job satisfaction is the extent of pleasurable emotional feelings individuals have about their jobs overall, and is different to cognitive job satisfaction which is the extent of individuals' satisfaction with particular facets of their jobs, such as pay, pension arrangements, working hours, and numerous other aspects of their jobs.

Following Moorman's 1993 work this study aimed at evaluating the perceptions of employees (a significant sample) to certain elements / factors positively associated with satisfaction at work or with work per se. In this study, aspects of the job that could be derived from the Hackman's job characteristics model, Taylor's model and Mirvis and Lawler's model which are most commonly considered from the viewpoint of HR were put together. Employee perceptions were gathered and collated. Most core dimensions / impact factors which would fall into the various factors proposed by Taylor with some intrinsic elements of Hackman's model were considered. If one looks at the segment of strong agreement, and agreement we can separate them out in a notional hierarchy from very essential to desirable. An interesting conclusion can be surmised as a future course of action, direction, or focus.

The proposition is that one can safely presume that employee satisfaction with various aspects/ dimensions of work are either connected through direct aspects /or indirect outcomes. The strength of the positive perception reveals/reflects the qualitative aspect in each dimension. One can conclude that stronger the positive perception on each dimension / aspect the higher the quality in the broadest sense. The Hackman and Oldham model postulated that the sum of the strength of all factors clubbed under each dimension would be indicative of differential quality of each dimension. Likewise we could consider the strength of the sum of these key factors as aiding in "sustainability of work life quality over a longer time span". A simple conceptual frame work will illustrate the chain of thought. If one uses time honoured Maslows (1943) hierarchy of needs as an analogy, then a representative schema may emerge as follows:

I. Physiological needs
   1. Working conditions
   2. Facilities
   3. Equipment

II. Safety and security needs
   4. Compensation and Rewards
   5. Relative job security

III. Belongingness needs and self esteem needs
   6. Work culture and work climate

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7. Quality of Relationships and Degree of cooperation

IV. Self esteem and self actualization needs

8. Freedom to innovate and use skills to fullest level

3. Conclusions

Suggestions to maintain sustainability and areas of focus for the HR function. The HR functions in most organizations work on several initiatives in disjointed manner. We propose that they should look at each initiative with following the hierarchy proposed below. A caveat is in order here. All we are sp... is that the degree of emphasis should be categorised as per the schema below to keep the organizational initiatives aligned with quality and sustainability. Sustainability thinking overrides qualitative thinking by emphasising aspects as essential, followed by preferential in this case instrumental, enabling, and enriching.

In order to ensure sustainability of QWL, we propose that HR professionals should focus on each area of QWL from the frame work suggested below:

I **Essential Focus** to be maintained at above average levels at all times.
- Working conditions
- Facilities
- Equipment

II **Instrumental Focus** to be used as a lever from a situational and strategic angle.
- Compensation and Rewards
- Relative job security

III Enabling **Focus** to be worked on continuously for enhancing the first two
- Work culture and work climate
- Quality of Relationships and Degree of cooperation

IV **Enriching Focus** to bring in self determination
- Freedom to innovate and use skills to fullest level
- Overall motivation to work.

It would be presumptuous to suggest a hierarchy, yet HR departments can look at each aspect separately and concentrate specifically depending on the circumstances. Hypothetically speaking deficits in I and II would weaken sustainability more than deficits in III and IV. And greater strength in III and IV while keeping I and II above average would leverage quality and strengthen sustainability.

Scope for Future Research: The present study identified important QWL factors in the freight forwarding industry and employees perception on QWL factors. It has opened avenues for further study using the conceptual frame work proposed herein. The existence of QWL might be studied in different industries using the same. Also a comparative study of different organisations can be done with reference to QWL. A study could be done to find out the impact and association of QWL on productivity of

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employees. The study on existence of QWL and the difference in perception by gender could also be undertaken.

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Research on the Core Competitive Power Elements Evaluation System of Green Hotel

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Abstract. *Green hotel is a new type of hospitality industry development model based on the concept of circular economy and sustainable development. This paper makes an analysis and evaluation of the elements of green hotel core competence, on this basis, constructs the Green Hotel core competitive evaluation index system. The construction of the system is conducive to understand the green hotel's own competitive advantage objectively, and explore ways to enhance its core competitiveness, providing objective basis for sustainable development of China's Hotel industry.*

Keywords: Green Hotel; Core Competence; Evaluation Index System

JEL Codes: L83

1. Introduction

According to the definition in the Standards for Green Tourist Hotel (LB/T007-2006) released by the National Tourism Administration of PRC on March 23, 2006, green tourist hotel refers to the hotel oriented at the idea of sustainable development, adhering to cleaner production, advocating green consumption, and protecting ecological environment, and its core lies in strengthening the sustainable protection of environment and the reasonable utilization of resources in the course of production and operation. Green tourist hotel is a new concept, requiring hotels to integrate environmental management into hotel business management, give top priority to environmental protection, adjust development strategy, management concept, management mode, and service mode, implement cleaner production, provide products meeting the safe and health requirements of human bodies, and also guide the public to cultivate an awareness in conservation and environmental protection, changes of the traditional consumption concept, and green consumption. Its essence is to provide hotel guests with high quality products meeting the requirements of environmental protection, and realize energy and resources conservation, emission reduction, and environmental pollution prevention, and constantly improve the quality of products [1].

Green hotel core competence theory is needed by the development and maturing of green hotel as a guide, and the ultimate aim of green hotel core competence is to realize customer demands and win customer loyalty, so that market competitive advantages and also excess profit can be won by hotel. Green hotel in China is still in the stage of exploration, and also the application of green technology and the operation and management of hotel far lag behind those in developed countries. It is difficult to enter the

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international market because of the insignificant competitive advantages in products and services, so it loses the opportunities to compete with international hotel groups. Therefore, to enhance international competence, it is necessary for green hotel in China to actively meet challenges, provide the vast number of consumers with safe, healthy, and green products from the perspective of protecting the ecological environment according to the requirements of low carbon economy, and promote the harmonious development of man and nature, so that the purpose of breaking green trade barriers and enhancing the international competence can be realized.

2. The Connotation of Green Hotel Core Competence

2.1. General Review of Enterprise Core Competence

In 1990, American scholar C. K. Prahalad and British scholar Gary Hamel first proposed the concept of "core competence of enterprise" in their classical essay The Core Competence of the Corporation published in Harvard Business Review. They think that the so-called core competence refers to the knowledge and skills integrated internally by enterprise and especially the integration of those knowledge and skills coordinating all aspects. Along with the proposal of the concept of the core competence of enterprise, core competence quickly becomes a hot point in the studies of enterprise strategic management theory, and its connotation, elements, index system and evaluation method are studied by many scholars successively. Comprehensively, there are three major schools for the general theory for the core competence of enterprise: (1) the "market structure" (also called as environmentalism) represented by Michel E. Porter: it attaches importance to analyzing enterprise competitive advantages from the perspectives of enterprise external industrial structure and enterprise market positioning; (2) the "resource-based view" represented by B. Wernerfelt: it attaches importance to analyzing enterprise competitive advantages from the perspective of enterprise internal resources differences, and thinks that there are differences between enterprises in tangible resources, intangible resources and accumulated knowledge so as to generate enterprise competitive advantages; (3) the "capabilities-based view" represented by C. K. Prahalad and Gary Hamel: it thinks that the core competence of enterprise is an ability system, and the accumulation, maintenance and use of enterprise special ability are the decisive factors of enterprise competitive advantage [2].

Combined with the characteristics of hotel business, Mingzi PU (2008) defined hotel green competence as follows: in the market environment of competition, hotel applies the strategy of sustainable development based o the needs of environmental protection and their own interests, and gains a competitive advantage when rationally allocating hotel resources, providing green hotel rooms and services, and reducing the risks for environment and human health through technology and management innovations [3]. Core competence refers to a "confrontation" ability possessed by enterprise compared with competitors. The core competence of green hotel sources from the competitive advantage of hotel as well as the sustainability and scalability of this advantage, and it can help green hotel to construct enterprise strategy, expand core business, and develop toward collectivization. The core competence of

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green hotel consists of four aspects (i.e. green products, human resource management, brand marketing, and corporate culture).

2.2. The Principles for the Construction of the Green Hotel Core Competence Evaluation Index System

The information of all aspects can be expressed by green hotel core competence elements evaluation system in an easy-to-understand way, and thus all sorts of information related to creating enterprise competitive advantages can be provided for hotel managers and also the index system can be used for setting up a goal and monitoring influence results. The index system can help green hotel to design products and make policies. Whatever indexes and how many indexes are chosen for establishing green hotel core competence evaluation index system, the possibility and reliability of data sources are necessarily considered, and a theoretical basis is also necessarily available. In this paper, combined with the actual situation of China, the following principles are mainly followed in the construction of green hotel core competence evaluation index system.

2.2.1 Necessity

Different indexes reflect different aspects and content characteristics, and also their function and influence on a specific economic activity are greatly different, so the necessity of core competence influence should be considered in the selection of indexes. That is, the number of the indexes chosen for the contribution of core competence is not large, but the primary and secondary roles of these indexes should be strictly distinguished and properly used, and the indexes directly reflecting enterprise core competence should be highlighted.

2.2.2 Scientific and operable

The established index system is necessary to fit hotel macro-environment, industry competition environment, and economic development level. Its calculation method is scientific and easy-to-operate, and also the information can be easy-to-acquire.

2.2.3 Global and representative

All designed indexes are required to own a clear definition, not only scientifically reflecting the overall perspective of green hotel core competence, but also integrating the resources of green hotel from the angle of individual elements, so that the core competence of green hotel is excavated and also the important influence of competitive advantage is obtained.

2.2.4 Comprehensive

In evaluation, distinct competence and potential competence of green hotel should be fully considered. A multi-index evaluation system is formed through designing multi-dimensional green hotel core competence evaluation elements, and also a multi-index comprehensive evaluation method is used. In the

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meantime, the characteristics of the combined tangible products and intangible services of hotel are necessarily considered, so as to seek the common factors reflecting and evaluating the core competence of green hotel and also design evaluation indexes from being responsible for environment.

3. Construction of Green Hotel Core Competence Evaluation Index System

In this paper, using the construction method of enterprise competence evaluation index system for reference and according to the roles played by hotel core competence theory as well as all elements in highlighting the competitive advantage of green hotel, the logical framework of green hotel core competence evaluation index system is constructed as shown in figure 1, aiming at guiding green hotel to seize opportunities and integrate enterprise internal and external resources and give full play to their own advantages. Thus, the collaborative and sustainable developments of green hotel core competence elements are realized.

From the logical framework of green hotel core competence evaluation index system, it is known that green hotel core competence evaluation indexes are composed by three layers, which are the layer of environmental elements, the layer of competence elements, and the layer of support elements, respectively.

3.1. The layer of environmental elements

Environmental elements are supports highlighting green hotel core competence; a small ecological system internally and externally interacted is formed by hotel and consists of hotel people (including employees and customers), microbial environment, animal and plant environment, climate factors, and energy factors. In this ecological system, hotel people will generate certain food consumption, material consumption, resource consumption and energy consumption, and these consumptions take up a large proportion in the overall energy consumption of the hotel ecological system; there are effects from microbes on hotel indoor environment quality and hotel people's safety and health; there are effects from plants and animals on hotel production and services and hotel people's safety, health and mental state; there are effects from climate factors on hotel business operation; there are effects from energy factors on hotel energy supply cost and environmental benefits.

3.2. The layer of competence elements

The layer of competence elements is to create the key point of green hotel core competence, and mainly includes green hotel products, human resource management, brand marketing, and corporate culture. The four elements occupy a key position in the green hotel core competence evaluation index system; the realization of cooperatively integrated hardware and software of green hotel products, the cooperative creation of human resources management, the cooperative promotion of brand marketing, and the powerful propulsion of corporate culture are the key steps of improving green hotel core competence.

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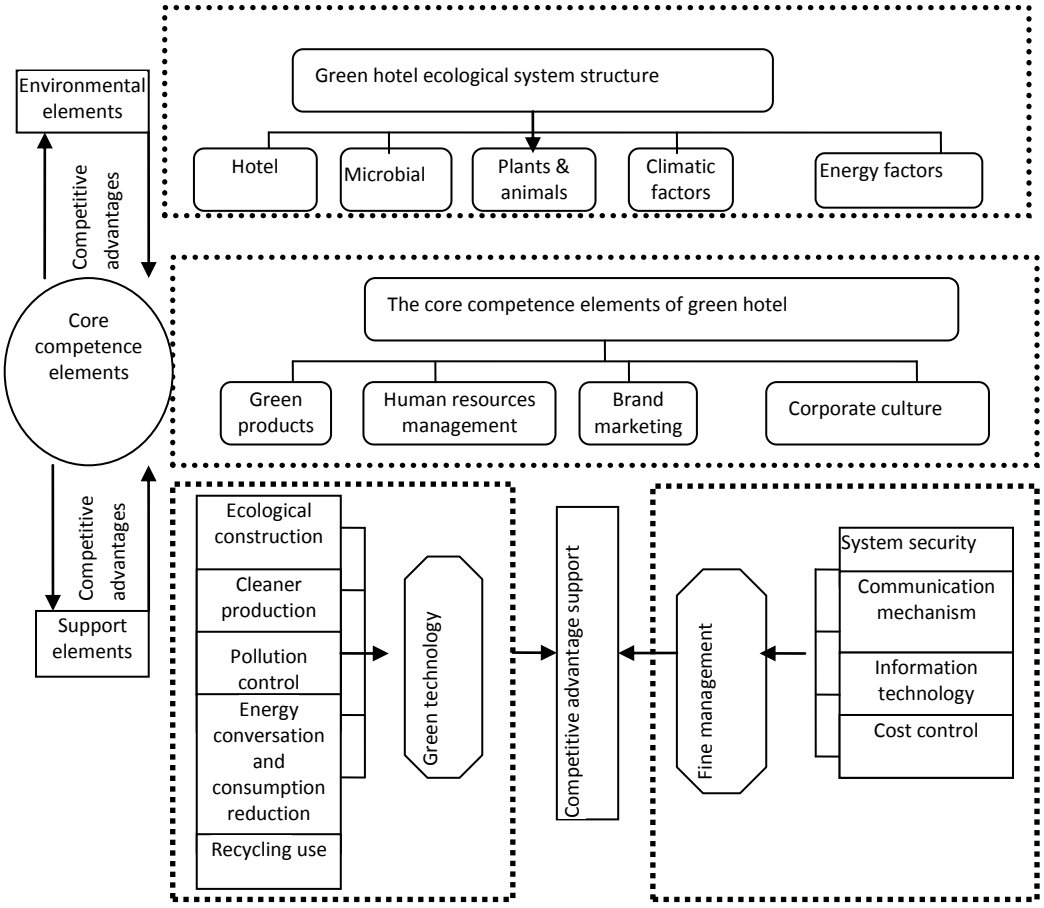

Fig 1: Logical framework of Green hotel core competence evaluation index system

3.3. The layer of support elements

The layer of support elements is a breakthrough point of promoting green hotel the core competence, and mainly includes green technology and fine management. Green technology includes five elements (ecological construction, clean production, pollution control, energy conservation and consumption reduction, and recycling use); ecological architecture embodies the future development direction of green hotel buildings; cleaner production is a production way used by green hotel to protect environment; pollution control shows the responsible attitude of hotel toward external ecological environment; energy conservation and consumption reduction are important means used by green hotel to realize sustainable development; recycling use decides the comprehensive effect of the green technology used by green hotel.

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4. Evaluation Method

In this paper, based on the logical framework of green hotel core competence evaluation index system, the green hotel core competence evaluation index system is divided into four layers (goal layer, sub-goal layer, core indexes, and index variables). Goal layer is to construct the ultimate goal of this system—create the core competence of green hotel; sub-goal layer consists of three sub-goals, which are environmental element, competence element, and support element; core indexes include seven indexes (green hotel ecological system, green hotel products, human resource management, brand marketing, corporate culture, green technology, and fine management); index variables include 30 specific index variables. The dominance relationship among all layers from top to bottom constitutes a hierarchical structure, as shown in table 1.

Table 1: The core competence evaluation index system of Green hotel

Goal layer	Sub-goal layer	No. (S)	Core indexes	No. (G)	Index variables	No. (P)
The core competence of green hotel	Environmental elements	S1	Green hotel ecological system	G1	Hotel people (Employees and customers)	P1
					Microbial	P2
					Plants & animals	P3
					Climate	P4
					Energy	P5
	Competence elements	S2	Green hotel products	G2	Product characteristics	P6
					Product innovation	P7
					Service quality	P8
					Service facilities	P9
			Human resources management	G3	Employee drain rate	P10
					Employee quality	P11
					Training intensity	P12
			Brand marketing	G4	Recognition	P13
					Popularity	P14
					Reputation	P15
					Customer satisfaction	P16
					Customer loyalty	P17
			Corporate culture	G5	Corporate image	P18
					Spiritual culture	P19
					Incentive mechanism	P20
					Staff cohesion	P21
	Support elements	S3	Green technology	G6	Ecological construction	P22
					Cleaner production	P23
					Pollution control	P24
					Energy conversation and consumption reduction	P25
					Recycling use	P26
			Fine management	G7	System security	P27
					Communication mechanism	P28
					Information technology	P29
					Cost control	P30

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Green hotel core competence evaluation index system involves many factors and layers so it is very complicated, and also many of its factors are uneasy to quantify and difficult to process with general quantitative or qualitative methods. In this paper, an evaluation model is established by combining fuzzy comprehensive evaluation with analytic hierarchy process, so as to evaluate the core competence of green hotel. The specific steps are as follows:

4.1 Establishing a set of evaluation indexes: The set composed by the sub-goals of green hotel core competence evaluation index system is $C_S = \{C_1,\ C_2,\ C_3\}$, and the indexes set composed by core goals is $C_G = \{C_{G1},\ C_{G2},\ \cdots,\ C_{Gn}\}$, in which n is the number of the core indexes in the sub-goal layer.

4.2 Dividing evaluation levels and establishing evaluation standards set: Based on related literature references, consulting experts and the actual conditions of China's green hotel operation, evaluation levels are set as $U = \{\text{very good, good, average, poor, very poor}\}$.

4.3 Establishing scores matrix: Scores are provided for evaluation levels (see table 2), and also the scores matrix $H = \{100,\ 85,\ 65,\ 40,\ 25\}$ is established.

4.4 Determining the indexes weight and weight coefficients (A and A_i) using analytic hierarchy process: The specific steps are as follows:

4.4.1 Green hotel core competence evaluation index judgment matrix is established according to table 1. The indexes of each layer are compared by green hotel rating experts in pairs for obtaining a corresponding judgment matrix. According to the actual conditions of innovative enterprise and the suggestions from experts, pair-wise judgment matrix is constructed with nine-scale method (see table 2).

Table 2: Meaning and value of judgment matrix scales

Scale	Meaning
1	Two factors are equally important
3	The first actor is slightly important than the second factor
5	The first actor is significantly important than the second factor
7	The first actor is strongly important than the second factor
9	The first actor is extremely important than the second factor
2/4/6/8	The value between the above adjacent two cases
Reciprocal	Meaning the opposite

4.4.2 Calculating the maximum feature value of judgment matrix $\lambda \max$ and its corresponding feature vector

4.4.3 Implementing a consistency check on judgment matrix scales: $CR = \frac{CI}{RI}$ is calculated, in which $CI = \frac{\lambda \max - n}{n-1}$, and RI is defined as random consistency index and required to pass the consistency

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check because this inconsistent degree has to be controlled within a certain range, so as to prevent the emergence of the consistency in the multi-order judgment. Then, the average random consistency index scale and its coefficient table are introduced, n is set as judgment matrix order number, and the corresponding average random consistency index is as follows if n=l, 2, …9 (see table 3).

Table 3: The values of random consistency index RI

Order number (n)	1	2	3	4	5	6	7	8	9
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45

If the value of CR is less than 0.10, judgment matrix consistency can be accepted. Otherwise, the calculation returns to 4.1 for adjusting judgment matrix.

After the relative importance of the elements of each level to the last level, the overall comprehensive importance of the elements in each level to the evaluation system can be solved from top to bottom. After the comprehensive importance is solved, the whole green hotel core competence evaluation index system is completed. Then, the core competence of green hotel can be comprehensively scored through the application of this system.

4.5 Implementing single-factor evaluation: The single-factor evaluation matrix $Ri(\mathrm{r}_{ij})$ from C to U is established with Delphi method. The result of single-factor evaluation is $Bi = Ai \times Ri$.

$$\mathrm{r}_{ij} = \frac{\text{Choose the number of green hotel rating experts of a factor evaluation result in U}}{\text{The total number of green hotel rating experts}}$$

$$R_i = \begin{bmatrix} \mathrm{ri}_{11} & \mathrm{ri}_{12} & \cdots & \mathrm{ri}_{1n} \\ \mathrm{ri}_{21} & \mathrm{ri}_{22} & \cdots & \mathrm{ri}_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ \mathrm{ri}_{m1} & \mathrm{ri}_{m2} & \cdots & \mathrm{ri}_{mn} \end{bmatrix}$$

4.6 Fuzzy comprehensive evaluation: Matrix R is composed by Bi, and then comprehensive matrix B is solved, namely

$$R = \begin{bmatrix} B_1 \\ B_2 \\ \vdots \\ B_i \end{bmatrix}$$

$$B = A \times R$$

4.7 Calculating the comprehensive evaluation value: Each index variable is calculated with $E = B \times H^T$.

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5. Conclusion and Prospect

In this paper, according to the connotation of green hotel and the enterprise core competence theory, the logical framework of green hotel core competence evaluation index system is constructed, and also a concrete evaluation method is given, so that the conclusion in the following is obtained.

First, the preliminary construction of green hotel core competence evaluation index system is helpful for solving many problems in current green hotel investment project evaluation realities, so that the green hotels in China can not only better adapt to the market environment and its change in the new period, and also can harmoniously co-exist with social and ecological environments. Thus, a solid foundation is laid for the long-term development and continuous profitability of green hotel investment projects.

Second, the green hotel core competence evaluation index system constructed in this paper provides evaluation and decision references for tourism management departments to make industry standards, promotes the transformation and upgrading of the hotel industry in China, and also further enriches and improves the core competence theory of service enterprises.

Third, the application of green hotel core competence evaluation index system is helpful for making green hotel strategic development plans. In making green hotel strategic development plans, the green hotel core competence evaluation index system should be applied in combination with the actual conditions, and the staff suggestions and actual conditions of hotel should be fully reflected, so as to guide green hotels in making strategic development plans.

Fourth, in the green hotel core competence evaluation index system constructed in this paper, green idea is deeply rooted in the dimensions of organizational culture and management concept, and also the core competence of green hotel is standardized and refined from hotel argumentation and design to hotel operation and management, so as to tightly focus the win-win goal of environmental benefit and economic benefit.

Green hotel core competence evaluation index system covers all important parts of green hotel operation environment, and more comprehensive core indexes and index variables are chosen than before in it. However, there are still many shortcomings of this study because of the limitations of the subjective and objective conditions. If the longer-term data of green hotel can be tracked and acquired, the core competence elements of green hotel can be further induced and refined with the indexes in this paper. Subsequently, references can be provided for green hotel investors to make harmonious ecological, social and economic development decisions in advance.

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CO2 Embodied in Trade between Poland and Selected Countries

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Abstract. *This study is aimed at analyzing the carbon embodied in trade flows between Poland and its major trade partners. Calculations are based on the data from the GTAP database for the year 2004. The study uses an input-output analysis, which allows responsibility to be assigned to individual flows for generating specific amounts of emissions in the economy. It is shown that Polish exports contain significantly more embodied carbon than Polish imports, despite the fact that the value of the imports is higher. Moreover, it is found that among the surveyed countries, only three were net importers of carbon emissions to Poland. Export to Germany is responsible for the most of emissions in Poland. In turn, Poland receives the most emissions from imports from Russia.*

Keywords: Carbon dioxide, embodied emission, Input–Output analysis

JEL Codes: Q53, Q56, Q58

1. Introduction

The growing interest in climate change serves the development of interdisciplinary research combining various areas of interest in this phenomenon. Economic science benefits heavily from this, most often addressing issues concerning the economic impact of climate change and of climate policy. Since the primary goal of climate policy is the reduction of greenhouse gases, the study of the causal relationships between emissions of these gasses and the economy is of interest to economics. Those relationships can be studied under various aspects, one of which is foreign trade. The problem was first approached after the adoption of the United Nations Framework Convention on Climate Change (UN FCCC) in 1992, which aimed at stabilizing anthropogenic greenhouse gas emissions, especially carbon dioxide (CO_2) (1992). Precursors of the current study have addressed the fact that developed countries, when obliged to reduce their emissions, import many goods and services from developing countries, thereby contributing to the growth of greenhouse gas emissions in those countries (Wyckoff and Roop 1994; Subak 1995; Schaeffer and Andre 1996; Lenzen 1998). This was, as it turned out, a real threat to the effectiveness of global efforts to reduce

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emissions. It is difficult to treat the reduction of emissions in one country as effective if it entails a growth in imports and an accompanying increase in indirect emissions in the exporting countries. This has been observed in the case of the emissions of the United Kingdom (Helm, Smale et al. 2007). In this way, emission sources are merely moved from one country to another. Trade here acts not only as a factor leading to economic growth through increasing efficiency of resource allocation, but also as a mechanism which allows environmentally burdensome production to move to countries with lower environmental standards(Rhee and Chung 2006). One method of measuring the indirect responsibility for pollution emissions, including greenhouse gas emissions, outside a given country, is to measure the so-called emissions embodied in trade. Emissions embodied in trade include all emissions which were emitted in country A in order to generate trade flows from country A to country B.

One of the important reasons for studying the greenhouse gas emissions embodied in trade is to identify the effect known as carbon leakage. This phenomenon is based on the growth of greenhouse gas emissions in countries with have no emission reduction commitments, thanks to the reductive measures taken by other countries. This issue is often discussed in the literature of climate change economics (Metz, Davidson et al. 2007; Peters and Hertwich 2008; Bernard and Vielle 2009; Kuik and Hofkes 2010). Apart from this, there are also practical reasons for conducting this research. Peters and Hert wich convincingly argue that emissions embodied in trade have a significant impact on participation in and the effectiveness of global climate policies such as the Kyoto Protocol (2008). Furthermore, knowledge about them can be applied in creating national and regional policies for climate change mitigation. This confirms the growing interest in adapting trade policy measures for climate policy purposes. (Neuhof 2007; Zhang 2009; Dissou and Eyland 2011). Besides what has already been indicated, an inventory of emissions induced abroad is useful in determining the indirect responsibility for their formation. This allows us to observe the actual reduction efforts of different countries and groups of states.

In recent years, the number of works on embodied emissions has systematically increased. A review of over 50 paper son this topic from the period 2007–2009 has been written by Wiedmann (2009). Since that time, many new articles have been published. A significant number of them focus on emissions embodied in trade flows. The vast majority of published works concern China, and analyse the influence on worldwide CO_2 emissions of exports from that country (Yunfeng and Laike 2010), the influence of individual sectors on the emissions embodied in Chinese exports (Lin and Sun 2010; Su, Huang et al. 2010), and the way in which carbon emissions are embodied in China's trade with Japanand the USA (Dong, Ishikawa et al. 2010; Guo, Zou et al. 2010; Liu, Ishikawa et al. 2010). Among the studies focused on other countries, one can find analyses of CO_2 emissions implicated in Austria's trade(Gavrilova, Jonas et al. 2010; Munoz and Steininger 2010), as well as publications presenting global emission flows between individual countries and groups of countries (Chen Z. and Chen G.Chen, Chen et al. 2010; Atkinson, Hamilton et al. 2011; Chen and Chen 2011). So far, there is a lack in the literature of a study that would in particluar focus on emissions embodied in trade with Poland. This is the goal of this article.

The study presents the influence that multilateral trade relations have on CO_2 emissions in Poland and abroad. To this end, the 20 countries with which Poland has the greatest volume of trade are analysed

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here. The basic research questions concern the amount of CO_2 emissions in Poland resulting from the export of Polish goods and services to those countries, and the emissions in those countries resulting from the export of their goods and services to Poland. Questions are raised concerning the direct and indirect effects of trade-associated emissions, and about the level of carbon intensity in trade flows between Poland and the analysed countries.

The outline of the work is as follows: section 2 describes the applied methodology and data sources, section 3 presents and discusses the results of the analysis of the emissions embodied in trade between Poland and its major trade partners, and the last section contains the conclusions of the study.

2. Methods

This study uses the methodology for calculating emissions embodied in bilateral trade (EEBT) (Peters 2008). The EEBT is calculated based on data from international trade statistics in monetary units. Because the method does not distinguish trade flows satisfying final consumption from those satisfying intermediate consumption, but treats them together, its usefulness for evaluating the emissions resulting from consumption is limited. It allows the calculation of the emissions generated in a given region in order to produce goods and services destined for export. This is not, however, the total emissions embodied in exported goods and services, because imported intermediate goods and services are usually used during the production, which cause emissions elsewhere. Since this method does not take into account emissions associated with the production of imports, its results cannot be equated with the carbon footprint.

The EEBT methodology is based on the input-output (I-O) analysis developed by Leontief (1941). Since its main assumptions have been described in detail by, among others, Miller and Blair (2009), hereafter only the main formulas are presented.

The economy can be divided into a number not interrelated industry, whose total output is expressed by:

$$x=Ax+y \qquad (1)$$

The vector x represents the total output in each sector; *A* is a technical coefficient matrix, whose general elements a_{ij} indicates the demand per unit of production of sector *i* in sector *j.* Then *Ax* is a vector representing the total intermediate consumption. The elements of the vector *y* indicate the size of the final demand for the production of each sector. All scales used in the calculations are expressed in terms of value. In order to calculate *x*, the following transformations have to be performed:

$$\begin{aligned} x-Ax&=y \\ (I-A)x&=y \\ x&=(I-A)^{-1}y \end{aligned} \qquad (2)$$

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In the sequence of Eq. (2), I is the identity matrix, i.e., the matrix with ones the main diagonal zeroes everywhere else. The matrix is $(I-A)^{-1}$ "Leontief 's Inverse matrix", and is fundamental for the input-output analysis. The values in this matrix describe the influence of the exogenous change of the final demand on the total production. It allows tracking of mutual interactions between the elements of the production system, including the analysis of flows between the sectors.

Based on Eq. (1), the total production of a country *r*, denote dx^r, can be described with the formula:

$$x^r=A^{rr}x^r+y^{rr} \quad (3)$$

where yr is the vector of the final demand on domestic production, A^{rr} is a matrix in which the entry $a^{rr}{}_{ij}$ is the amount of input from sector *i* in country *r* per dollar's worth of output of sector *j* in *r*. Then, $A^{rr}x^r$ expresses the total intermediate demand in country *r* for domestic production.

The final demand in Eq. (3) can be expressed as

$$y^{rr}=c^{rr}+g^{rr}+e^r \quad (4)$$

where c^{rr} is the vector of the final consumption of domestic production, g^{rr} is the vector of government expenseson domestic production, and e^r is the vector of export. Therefore, the output equation can be rewritten as

$$x^r=A^{rr}x^r+c^{rr}+g^{rr}+e^r \quad (5)$$

and according to Eq. (2),

$$x^r=(1-A^{rr})^{-1}(c^{rr}+g^{rr}+e^r) \quad (6)$$

In order to evaluate the total CO_2 emissions created during the production processes in country *r*, the total production has to be multiplied by the CO_2 emission factor:

$$f^r co_2=F^r co_2 x^r=F^r co_2(I-A^{rr})\text{-}1(y^{rr}+g^{rr}+e^r) \quad (7)$$

where $f^r co_2$ is the total CO_2 emission in country *r,* is a row vector whose elements indicate the amount of CO_2 emission per dollar of total output of each sector in country r.

The assumption of linearity accompanying the input-output approach allows Eq. (7) to be decomposed and permits evaluation of the effect of each component of the final demand individually. However, because the study focuses on identifying the emission effect caused by export, only this aspect is further considered.

Total CO_2 emission generated in country *r* to meet the total external demand,

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$$f^{ex}co_2=F^r co_2(I - A^{rr})^{-1}e^r \quad (8)$$

denoted by, can be expressed as

$$e^r=\Sigma_s\, e^{rs} \quad (9)$$

Because the export vector e^r is the sum of trade flows from country *r* to country *s*:

$$f^{rs}co_2=F^r co_2(I - A^{rr})^{-1}e^{rs} \quad (10)$$

With a further break-down of Eq. (8) it is possible to capture the emissions embodied in individual trade flows, according to the relation

Where $f^{rs}co_2$ is the emission embodied in exports from country *r* to country *s*.

At the same time, Eq. (10) allows the derivation of the emission intensity factor

$$E_i^{rs}co_2 = \frac{f^{rs}co_2}{e^{rs}} \quad (11)$$

for exports from country *r* to country *s*, denoted $E_i{}^{rs}co_2$, which can be calculated using the formula

Moreover, in the total emission effect of exports from country *r* to country *s* calculated according to Eq. (10), the direct and indirect effect is highlighted. The direct effect, denoted by $fd^{rs}co_2$ in Eq. (12), concerns CO_2 emissions in exporting sectors during the production of goods and services destined for export, and is connected with primary demand.

$$fd^{rs}co_2=F^r co_2 e^{rs} \quad (12)$$

The methodology of calculating emissions embodied in bilateral trade also covers emissions generated throughout the whole supply chain of the exporting sectors. These are caused by intermediate demand for domestic goods and services, and constitute an indirect emission effect of exports from country *r* to country *s*, denoted in the following equation by:

$$f_i^{rs}co_2 = f^{rs}co_2 - fd^{rs}co_2 \quad (13)$$

The data used in the study are the latest available, and are widely used in contemporary published works (Atkinson, Hamilton et al. 2011; Chen and Chen 2011).

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The main source of these data is the Global Trade Analysis Project (GTAP),data base version 7.0.This is a fully documented, publicly available database representing the state of the world economy in 2004.It consists of 113 countries and regions, as well as 57 sectors.

The main file contains the values of flows of goods and services expressed in millions of American dollars ($m), according to the 2004 exchange rate (Badri Narayanan and Walmsley 2008). All values used in the calculations are in market prices without taxes.

Emission factors were obtained on the basis of estimations performed by Lee (2008).

These data are fully compatible with the GTAP 7.0 database, and were acquired based on fuel emission factors calculated according to the Tier 1methodology of the IPCC (Simon Eggleston, Leonardo Buendia et al. 2006).

3. Results and discussion

The emissions embodied in the total export of Poland were calculated using the relationship shown in Eq.(8), while the individual trade flows between Poland and the countries examined were calculated in accordance with Eq.(10). The aggregated results are shown in Table 1. In 2004, the emissions embodied in the total export from Poland to other countries equaled 78,320.20 $GgCO_2$, of which 82%, or 64,346.29 Gg CO_2, was exported to Poland's 20 most important trade partners. Chinese researchers (Chen, Chen et al. 2010) using the MRIO methodology (Multi-Regional Input–Output), which includes the emissions embodied in the intermediate use of imports, obtained the total value for Polish exports. The result was over 18% higher than the value obtained with EEBT.

Among the examined export flows, the greatest amount of emissions were clearly embodied in exports to Germany, coming to a total of 17,944.98 $GgCO_2$, which constitutes 23% of the total emissions embodied in Polish exports at that time. This is associated with the fact that Germany is the biggest recipient of Polish exports.

In the case of imports to Poland, the greatest amount of emissions was embodied in the trade with Russia, equaling 13,930.50 $GgCO_2$.This is a consequence of the structure of Polish imports from Russia, which mainly consists of natural resources which involve very high emission levels in Russia during their extraction and transportation.

The second most carbon-intensive source of Polish imports is China, which accounts for 7,654.78 $GgCO_2$. In this case, it is difficult to distinguish groups of goods which might have a significant influence on this result. Probably the low energy efficiency standards combined with the high emission intensity of the energy sector in China have crucial significance here. However, examining the co-responsibility for CO_2 emissions created as a result of bilateral trade relations, the most burdened of Poland's trade relations are those with Germany, Russia, the Czech Republic, and China.

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Table 1 CO_2 emissions embodied in trade between Poland and selected countries in the light of trade volumes in 2004 in Gg

Country	CO_2 emissions in exports from Poland	CO_2 emissions in imports to Poland	Total CO_2 emissions in bilateral trade	Trade balance of Poland	Volume of exports from Poland	Volume of imports to Poland	Trade turnover
DEU	17 944.98	5 111.58	23 056.56	-3 773.22	18 577.90	22 351.12	40 929.02
ITA	3 827.99	1 998.14	5 826.13	-2 224.61	4 658.48	6 883.09	11 541.57
FRA	4 235.02	1 161.99	5 397.01	-1 234.74	4 695.10	5 929.84	10 624.93
RUS	2 881.29	13 930.50	16 811.79	-3 643.90	2 750.22	6 394.12	9 144.34
GBR	3 782.90	1 382.15	5 165.05	494.56	4 072.62	3 578.06	7 650.68
USA	3 198.31	2 153.65	5 351.96	-285.74	3 010.10	3 295.84	6 305.94
CZE	6 203.39	2 346.92	8 550.31	-172.06	3 023.96	3 196.01	6 219.97
BEL	2 273.58	395.41	2 668.99	-162.11	2 633.04	2 795.14	5 428.18
SWE	4 149.53	259.45	4 408.98	264.43	2 671.58	2 407.15	5 078.73
ESP	1 681.01	1 004.83	2 685.84	-714.67	1 999.93	2 714.60	4 714.53
NLD	1 937.98	814.78	2 752.76	-459.59	1 940.08	2 399.67	4 339.75
AUT	2 561.17	313.51	2 874.68	-331.23	1 582.14	1 913.38	3 495.52
HUN	1 652.24	440.74	2 092.97	126.56	1 735.09	1 608.52	3 343.61
CHN	781.09	7 654.78	8 435.87	-1 741.29	637.44	2 378.73	3 016.17
DNK	1 235.69	219.21	1 454.90	-108.93	1 338.85	1 447.78	2 786.63
NOR	1 283.36	256.08	1 539.45	81.69	1 339.41	1 257.71	2 597.12
JPN	871.09	698.23	1 569.32	-921.88	821.42	1 743.30	2 564.73
UKR	1 551.96	2 730.56	4 282.51	756.02	1 653.75	897.73	2 551.48
SVK	1 468.30	810.00	2 278.30	-254.94	1 049.49	1 304.43	2 353.91
TUR	825.41	634.72	1 460.13	-149.00	948.33	1 097.32	2 045.65
Total	64 346.29	44 317.22	108 663.51	-14 454.64	61 138.91	75 593.56	136 732.47

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Among the 20 countries examined, the balance of CO_2 emissions embodied in Polish foreign trade (Fig.1.) was negative only for Russia, China, and Ukraine. This means that, as a result of the bilateral trade exchange with Poland, these countries release more CO_2 than Poland. Ukraine emitted more, despite its negative trade balance with Poland.

In other 17 cases, Poland was a net exporter of carbon emissions. It can be seen that the transfer of net emission to Poland comes from an eastern direction, from countries of lower environmental protection standards, whereas Poland's net carbon emissions were transmitted to wealthier western countries with higher environmental standards than Poland. Altogether, CO_2 emissions embodied in Polish exports to the countries examined here were 45% higher than those calculated in imports, despite the fact that the value of Polish imports exceeded the value of exports by 23%. This was the result of much higher intensity of emissions of Polish exports, in comparison with the intensity of emissions of imports.

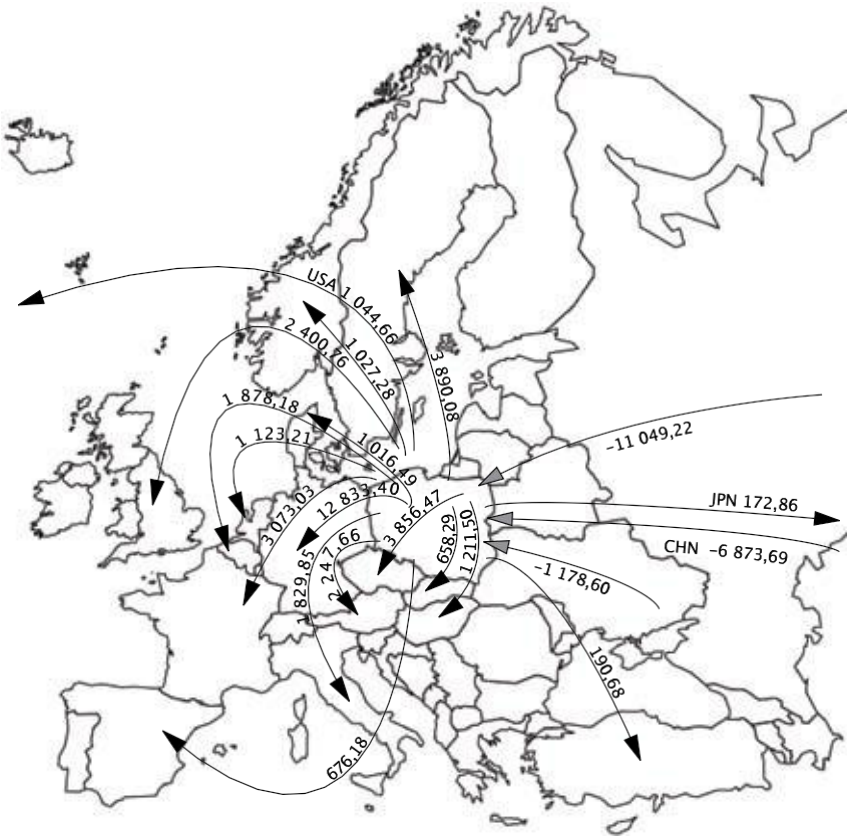

Fig. 1: Net flows of CO_2 embodied in bilateral trade between Poland and selected countries in 2004 in Gg

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The emission factor of Polish exports ranged from 0.82 to 2.05 Gg CO_2/$m (Fig. 2). This results from the diversified structure of Polish exports to individual countries. Exports to Italy had the lowest emission intensity, which is linked to the relatively large share of low carbon production in Polish exports to this country. Exports to the Czech Republic were the most emission-intensive, this being caused by the significant amount of electricity and other energy-intensive products involved in the exported goods and services. From among the 20 examined countries, only the emission intensities of imports from China, Russia, and Ukraine were higher than emission intensity factors of export to those countries. Low environmental standards and the crucial role of coal in energy-mixing those countries, as well as the significant quantity of energy-intensive products imported to Poland, probably have main impact on these factors.

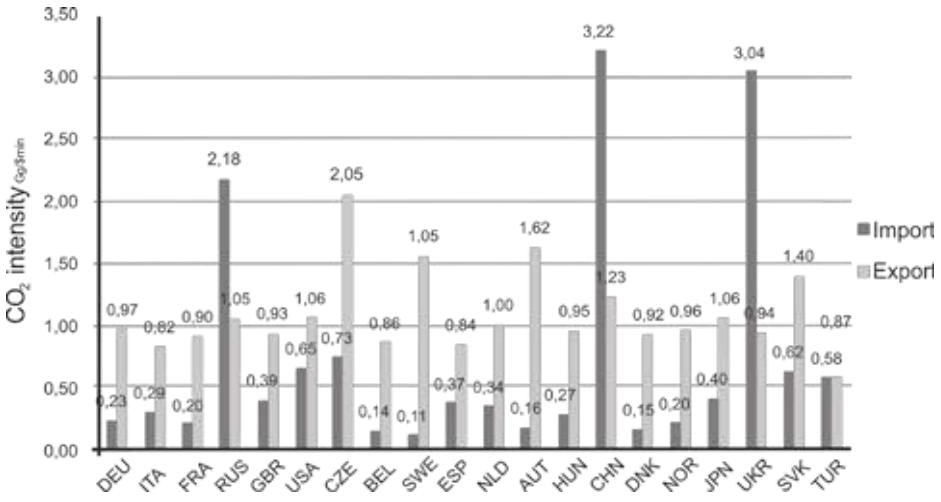

Fig. 2: CO_2 emission intensity factors of foreign trade flows of Poland in Gg/$ min 2004

The obtained emission intensity of imports from China of 3.22 Gg CO_2/$m is significantly different from the result obtained by Liu at al., which considers export from China to Japan in 2000 (Liu, Ishikawa et al. 2010). According to those authors, this factor in 1990 amounted to3.84 Gg CO_2/$m, and then it decreased, so that in the years 1995 and 2000 it amounted to 1.85 and 0.98 Gg CO_2/$m, respectively. Unfortunately this decrease was not explained, so it is difficult to point out the potential causes of these differences. Divergences are even more puzzling, as the emissions intensity of Japanese exports to China in the years 1995–2000 (quoted in that publication and obtained by the same method) fluctuated in the range of 0.39–0.47 Gg CO_2/$m, and can be compared with the results acquired for flows from Japan to Poland of 0.40 Gg CO_2/$m.

In the next paragraph, based on Eqs. (12) and (13), the emissions embodied in the international trade were divided into indirect and direct emissions (Table 3). These results show that indirect CO_2 emissions

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induced by Polish exports are almost three times higher than the direct emissions. This means that companies exporting their products from Poland have a much lower influence on emissions embodied in export than their national suppliers. Only exports to the Czech Republic and to Sweden cause a higher direct effect than indirect effect. For other export flows, the relation of the evoked direct emissions to the indirect emissions fluctuated from 1.26 for Austria to 5.93 for Turkey. In case of flows in opposite directions, the direct effect was in every case higher than the indirect one, and its power was almost as much as 10 times higher for imports coming from the United Kingdom. Both in Poland and in its biggest trade partners, the results indicate indirect emissions to be the key emissions source.

Table 2 Direct and indirect CO_2 emissions embodied in bilateral trade of Poland in 2004 in Gg

Country	Export			Import		
	Direct emissions	Indirect emissions	Ratio of indirect to direct emissions	Direct emissions	Indirect emissions	Ratio of indirect to direct emissions
DEU	3 542.45	14 402.54	4.07	917.80	1 429.12	1.56
ITA	689.83	3 138.16	4.55	192.19	203.21	1.06
FRA	710.99	3 524.03	4.96	1 004.27	4 107.31	4.09
RUS	634.33	2 246.96	3.54	130.58	182.93	1.40
GBR	816.53	2 966.37	3.63	706.32	6 948.47	9.84
USA	1 007.50	2 190.81	2.17	62.06	157.15	2.53
CZE	3 140.02	3 063.37	0.98	302.14	702.69	2.33
BEL	382.18	1 891.40	4.95	396.32	765.67	1.93
SWE	2 091.61	2 057.92	0.98	301.37	1 080.77	3.59
ESP	298.98	1 382.03	4.62	115.56	325.18	2.81
NLD	538.05	1 399.93	2.60	395.89	1 602.25	4.05
AUT	1 133.76	1 427.41	1.26	97.03	601.19	6.20
HUN	264.13	1 388.11	5.26	272.16	542.62	1.99
CHN	224.43	556.66	2.48	115.18	140.90	1.22
DNK	224.56	1 011.13	4.50	3 041.67	10 888.83	3.58
NOR	231.81	1 051.55	4.54	379.74	430.26	1.13
JPN	273.99	597.10	2.18	95.14	164.30	1.73
UKR	288.92	1 263.03	4.37	202.88	431.84	2.13
SVK	440.04	1 028.25	2.34	888.35	1 842.21	2.07
TUR	119.06	706.34	5.93	697.34	1 456.31	2.09
Total	17 053.17	47 293.11	2.77	917.80	1 429.12	1.56

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4. Conclusions

Poland exports significantly more emissions than it imports. However, this does not provide us with evidence that trade contributes to larger emissions in Poland than would be the case were there no trade exchange. The negative trade balance of Poland, together with the low emission intensity of imports, suggest that imports may contribute to the significant reduction of emissions, in comparison to the situation where imported goods are produced in Poland. Even so, taking into consideration the structure of Polish exports, which consist of many products from energy-intensive industries, it is possible that emissions created as a result of export exceed the potential benefits of import.

This study has indicated that the largest amount of emissions was created as a result of Poland's trade with EU Member States. These emissions remain under the control of EU climate policy, which aim to reduce them. In the case of the EU countries neighboring Poland, which by their trade with Poland contribute to the generation of significant CO_2 emissions, bilateral efforts to curb the emission impact should be considered. Implementing these additional measures could be particularly beneficial in sectors not covered by the EU Emission Trading Scheme. This is because emissions of these sectors are under the influence of domestic policies.

Regarding the phenomenon of "carbon leakage"—understood rather in its "weak" sense in contrast to its "strong" definition (Peters and Hertwich 2008)—we can recognize flows of net embodied emissions which come to Poland from Russia, China, and Ukraine.

This is not only because of the majority share in emissions embodied in the bilateral trade of those countries, but also because of the low environmental standards reflected in the emission intensity of the imports. In order to avoid the development of this leakage, there is a need to further monitor these flows in terms of emission embodied. This is crucial in the context of implementing the ambitious EU climate policy. Despite the provisions in new EU legislation providing special protection to "sectors exposed to the significant risk of carbon leakage", the risk of its escalation is high (2003/87/EC 2009; Clò 2010).

From the analysis presented here, it appears that, for the majority of emissions embodied in trade, indirect emissions were the main source. This demonstrates that, in order to effectively limit the influence of trade exchange on CO_2 emission in trading countries, policies should concentrate on comprehensive economy-wide solutions. The improvement of emission parameters in individual sectors, even if their role in export is significant, will probably bring poor results.

Some of the conclusions presented above require further examination, in order to obtain empirical support. Certainly the sect oral analysis of the examined carbon flows would be helpful. The issue of "carbon leakage", too, requires detailed studies. Moreover, carrying out a simulation to assess emissions in Poland under the closed economy assumption would have a crucial cognitive value.

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Impact of weight indicators of TOPSIS technique in the selected district in the Slovak Republic

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Abstract. *The purpose of multicriteria decision models is to help decision maker to evaluate each alternative and to rank them in descending order of performance. This study analyses the concept of Multiple Attribute Decision Making for using in local government area. The aim of this paper is to analyze the concept of Multiple Attribute Decision Making for selecting the most efficient municipality in selected district in the Slovak Republic. Achieving this purpose, TOPSIS technique (in two variants) is used as decision making tools.*

Keywords: TOPSIS technique, municipality, Prešov district

JEL Codes: H79

1. Introduction

According to [5] the aim of multicriteria decision is on a base of chosen criteria to select one variant which shows the best characteristics. However to be successful in this aim needs a huge amount of information which might not be available. Each of methods differs in providing ordinal or cardinal information about the order of each particular variant (the importance of particular criteria) and whether they need ordinal or cardinal information for its use about particular variants towards particular criteria (about the preference of those criteria). According to [8] the ordinal (order) variable takes verbal value. Those are presenting categories. They have relative meaning because we can't the difference between those categories. That is why you use cardinal (interval) variable which, according to [10] makes quantification. Moreover it makes quantification of differences between the categories.

According to [10] the basic advantage of evaluation on a base of more criteria is the fact, that they do not force reducing non - economic criteria to economic criteria at the expense of precarious or sparing operations.

According to [11] the first step is choosing of objects contained in analyze folder which is followed by choosing of concrete method of more criterion evaluation. Next step is a choosing of characteristics (indicator) characterizing a concrete object, which are considered to be important (the importance of each

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indicator) on a base of subjective preferences of each person individually. The obvious part is the identification of character of each indicator (whether it is the indicator of maximization or the one of minimization).

The process is divided by [5] of more criterion evaluation into following steps:

a) Creating of intentional set of criteria for evaluation with the important characteristics.

b) Making the list of the most important criteria.

c) The evaluation of results (outcomes, profits, and also lacks), variants, consisting of partly evaluation and the synthesis of those partly evaluations.

d) Considering the risk of realization.

e) Making the order list of variants and choosing the most sufficient one.

Other author [2] makes those following methods of more criteria evaluation the ones which are mostly used and also he explains why:

a) Simple method or the method of order summary

b) The method of points

c) The method of standard variable

d) The method of distance of fictive point

Last cited author [9] is describing the two categories of methods of more criteria evaluation of variants:

a) Methods based on partial evaluations of variants

- the method of summary (WSA)
- the method of base variant

b) Methods based on pairs-comparing of variants

- the lexicographical method
- the method AHP (Analytic Hierarchy Process)
- the method TOPSIS (Technique for Order Preference by Similarity to Ideal Solution)

The method of summary is useful when you need to state quantitative criteria. But it expects linear dependence on behalf of criteria (indicators). The principle of base method is stating of the best values and then you are about calculating of each useful function alternative. The lexicographical method consists of the supposal and it is that the biggest influence has the most important criteria. In the case of congruence you observe the second and the next criteria in an order. The method AHP includes all of the factors that influence the result (connection in between and intension of how much they influence each other). The method of TOPSIS is based on choosing a variant which is closest to the one which has been chosen before and also the farthest from the base variant.

The municipality in some part of the Slovak republic was chosen for the purpose of this contemplation and the chosen method was the TOPSIS method.

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2. TOPSIS technique

According to [7] the main concept behind TOPSIS (Technique for Order Preference by Similarity to Ideal Solution), as a technique for solving the Multiple Attribute Decision Making problems, is that the chosen alternative should have the shortest distance from the Positive Ideal Solution, and also have the farthest distance from the Negative Ideal Solution. Positive Ideal Solution is the solution that maximizes the benefit criteria and minimizes the cost criteria, while Negative Ideal Solution is the solution, which maximizes the cost criteria and minimizes the benefit criteria. Furthermore, TOPSIS alleviates the requirement of paired comparisons, and the capacity limitation may not significantly dominate the process. Hence, it is suitable for cases with a large number of attributes and alternatives, and especially handy for objectives with quantitative data.

„It is a rational and relatively simple method where the underlying concept is that the most preferred alternative should not only have the shortest distance from 'ideal' solution, but also the longest distance from an 'anti-ideal' solution.“ [12]

The other one characteristic by [4] is: “The basic concepts of TOPSIS are based on the predetermined positive ideal solution and negative ideal solution. The purpose is to find the alternative that is closest to positive ideal solution and farthest from the negative ideal solution. The positive ideal solution is the one with the most benefits and lowest cost of all alternatives, the negative ideal solution is the one with the lowest benefits and highest cost.“

Series of stages of TOPSIS technique are described by [7] as follows:

a) Construct normalized decision matrix.

b) Construct the normalized weighted decision matrix.

c) Determine the positive ideal and negative ideal solutions.

d) Calculate the separation measures (distance from PIS and NIS for each alternative).

e) Calculate the relative closeness to ideal solution.

f) Rank the preference order.

The same number of stages of TOPSIS techniques is identified by [1] as [7]. They indicate the little more detail 6 stages:

a) Construct the matrix of consequences.

b) Construct the matrix of normalized consequences.

c) Construct the weighted-normalized matrix with the criteria importance coefficients.

d) Define the PIS vector and the NIS vector (the vector for minimal value of alternatives if the criteria is a minimal criteria or the maxim value of alternatives if the criteria is a maxim criteria).

e) Calculation of distance between the each alternative and the positive alternative and the calculation of distance between the each alternative and the negative ideal alternative.

f) Determination of the index to positive ideal solution.

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3. Methodology

Used methods in this article we can divide in three categories:

a) TOPSIS technique,

b) Financial indicators,

c) Statics methods used to municipal valuation.

3.1. Topsis technique

According to [3] is the TOPSIS method based on choosing of an alternative, which is closest to the ideal variant and at the same time the farthest from the base variant. The supposal is maximal character of criteria.

We tend to [6], who considers the first step of the method making a matrix of criteria and then the summary of standard matrices. We can describe the calculus as following:

a) Construct starting criterial matrix (y_{ij}) a construction of vector weights (v_1, v_2, ..., v_k),

b) Construct criterial matrix R = (r_{ij}) of formula:

$$r_{ij} = \frac{y_{ij}}{(\sum_{i=1}^{n} y_{ij}^2)^{1/2}},$$

where i = 1, 2, ..., n; j = 1, 2, ..., k.

c) Construct the normalized weighted matrix W = (w_{ij}) of formula $w_{ij} = v_j r_{ij}$, where y_j – weight of j-criterion.

d) Using the matrix W elements is creating ideal variant (H_1, H_2,..., H_k) and baseline variant (D_1, D_2,..., D_k), where

$$H_j = \max(w_{ij}), D_j = \min(w_{ij}),$$

where j = 1, 2, ..., k.

f) For the calculation of the distance from the ideal option (d_i^+) and baseline option (d_i^-) we use the formula:

$$d_i^+ = \left[\sum_{j=1}^{k}(w_{ij} - H_j)^2\right]^{1/2}, \text{ or } d_i^- = \left[\sum_{j=1}^{k}(w_{ij} - D_j)^2\right]^{1/2},$$

where i = 1, 2, ... n.

g) The last step is calculating a relative distance from baseline variant:

$$c_i = \frac{d_i^-}{d_i^- + d_i^+},$$

where i =1, 2, ... n.

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Values c_i are in the range <0;1>, where 0 represents the basal variant 1 ideal option. The higher the value c_i, the greater is the distance from the baseline alternatives.

3.2. Financial indicators

The described method TOPSIS was used for evaluation of economy in villages belonging to Prešov county (the number of municipalities is 91). The charts consist of chosen villages because of the high number of municipalities in county (just for the illustration of method).

We used for municipal comparison these selected indicators (after consultation with municipalities):

a) R_1 – total expenditure per capita,
b) R_2 – borrowed funds to total municipal assets,
c) R_3 – total income per capita,
d) R_4 – current profit per capita,
e) R_5 – return on assets,
f) R_6 – current expenditure per capita,
g) R_7 – borrowed funds per capita,
h) R_8 – current income per capita,

The first indicator (R_1) describes only expenditure (cost = expenditure, i.e. is not examined law compliance) for one financial period per capita:

$$R_1 = \frac{C}{PO},$$

where: C – total expenditure,
PO – city population.

We can identify the construct of the second indicator (R_2) as follows:

$$R_2 = \frac{CzZ}{A},$$

where: CzZ – borrowed funds,
A - assets.

The third indicator (R_3) presents total income per capita:

$$R_3 = \frac{P}{PO},$$

where: P – total income,

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PO – city population.

Current profit per capita in one financial period is the fourth indicator (R_4) that was calculated:

$$R_4 = \frac{VH}{PO},$$

where: VH – current profit per capita,
PO – city population.

Return on assets (ROA) presents the fifth indicators (R_5) that is the basic indicator of evaluation of municipal management:

$$R_5 = \frac{VH}{A},$$

where: VH - current profit per capita,
A - assets.

Current expenditure per capita is the sixth indicator (R_6) that we can calculate:

$$R_6 = \frac{C_B}{PO},$$

where: C_b – current expenditure,
PO – city population.

The seventh indicator (R_7) borrowed funds per capita was calculated:

$$R_7 = \frac{CzZ}{PO},$$

where: CzZ – borrowed funds,
PO – city population.

Current income per capita presents the last indicator (R_8):

$$R_8 = \frac{P_B}{PO},$$

where: P_b – current income,
PO – city population.

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3.3. Used statistics methods

In addition to demonstrations and applications TOPSIS techniques such as multi-criteria evaluation of the effectiveness of the algorithm municipalities, we focus in the next section to analyze the results of multicriteria algorithms.

Municipalities have scored TOPSIS technique quantified of municipality with lowest score were the best. We investigate whether the success factor has a significant effect size of municipality. This leads us to the assumption that the largest of municipality can both realize economies of scale, and have more qualified personnel infrastructure to effectively ensure all processes at of municipality level.

For analysis, we took off in addition to MS excel even further, specialized statistical programs (SPSS and Systat).

Appropriate coefficient to measure context was chosen Kendall-Stuartovo tau-c:

$$\tau_c = \frac{n_c - n_d}{n^2 (k-1)/2k},$$

where: n_c – number of concordant pairs (i.e. ifk $x_i>x_j$ a $y_i>y_j$ or $x_i<x_j$ a $y_i<y_j$ for each sample consisting of n-observations of two variables Y and Y),

n_d - number of disconcordant pairs (i.e. if $x_i>x_j$ a $y_i<y_j$ or $x_i<x_j$ a $y_i>y_j$)

k – smaller value of m, n.

Both of these coefficients take values from -1 to 1. High value indicates a high degree of value dependence.

The significance testing of coefficients is based on the calculation of p-values. The significance factor is accepted if the calculated p-value less than 0,05.

4. Results

Since the method TOPSIS is choosing an alternative which is closest to the ideal variant and at the same time the farthest from the base variant we need to use the character of maximum of spotted indicators. Because of this reason were the indicators R_1, R_2, R_6, R_7 multiplied by coefficient -1.

The first step of the TOPSIS method is making a criterion matrix.

Table 1: Criterion matrix in 2012

	R_1	R_2	R_3	R_4	R_5	R_6	R_7	R_8
Abranovce	-0,078	-0,010	0,127	-0,004	-0,008	-0,109	-0,007	0,104
Bajerov	-0,181	-0,307	0,190	0,007	0,012	-0,254	-0,251	0,247
Bertotovce	-0,170	-0,185	0,120	-0,024	-0,012	-0,120	-0,531	0,113
Brestov	-0,056	-0,066	0,058	0,000	0,000	-0,079	-0,033	0,076
Bretejovce	-0,049	-0,025	0,058	0,013	0,056	-0,068	-0,008	0,065

Source: Own calculations

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The criterion matrix (table 1) creates a base for making a standard matrix. This matrix is considering the importance of each particular criterion (indicator), which was studied in two dimensions:

a) each of those indicator has the same weight, means 0,125,

b) each of those indicator has weight determined by municipal representatives (table 3).

Table 2: Weight ration of financial indicators

	R_1	R_2	R_3	R_4	R_5	R_6	R_7	R_8
Weight ratio	0,098	0,197	0,125	0,188	0,089	0,098	0,143	0,062

Source: Own calculations

The normalized weighted matrix obtained by weighting the individual indicators contained in table 3.

Table 3: Normalized weighted matrix in 2012

	R_1	R_2	R_3	R_4	R_5	R_6	R_7	R_8
Origin weight rations of financial indicators								
Abranovce	-0,010	-0,001	0,016	0,000	-0,001	-0,014	-0,001	0,013
Bajerov	-0,023	-0,038	0,024	0,001	0,001	-0,032	-0,031	0,031
Bertotovce	-0,021	-0,023	0,015	-0,003	-0,002	-0,015	-0,066	0,014
Brestov	-0,007	-0,008	0,007	0,000	0,000	-0,010	-0,004	0,009
Bretejovce	-0,006	-0,003	0,007	0,002	0,007	-0,009	-0,001	0,008
Modify weight rations of financial indicators								
Abranovce	-0,008	-0,002	0,016	-0,001	-0,001	-0,011	-0,001	0,006
Bajerov	-0,018	-0,060	0,024	0,001	0,001	-0,025	-0,036	0,015
Bertotovce	-0,017	-0,036	0,015	-0,005	-0,001	-0,012	-0,076	0,007
Brestov	-0,006	-0,013	0,007	0,000	0,000	-0,008	-0,005	0,005
Bretejovce	-0,005	-0,005	0,007	0,002	0,005	-0,007	-0,001	0,004

Source: Own calculations

With the help of elements of standard matrices (table 2) it was created the ideal and baseline variant and then calculated the relative distance from the baseline variant.

Tab. 4: The relative distance from baseline variant in 2012

	Origin	Modify
Abranovce	0,382	0,382
Bajerov	0,279	0,232
Bertotovce	0,232	0,220
Brestov	0,369	0,362
Bretejovce	0,396	0,386

Source: Own calculations

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On a base of the relative distance from baseline variant the municipalities were given points and they were arranged in the order for the certain year.

Table 5: The individual score of municipalities in 2012

	Origin rank	Modify rank
1.	Geraltov	Geraltov
2.	Gregorovce	Janov
3.	Janov	Gregorovce
	…	…
89.	Bajerov	Bajerov
90.	Rokycany	Bertotovce
91.	Bertotovce	Rokycany

Source: Own calculations

The municipality with very little points was classified as the best by the TOPSIS method in the particular section (the years 2010-2012).

Table 6: The overall score of municipalities 2010 – 2012

	Origin rank			Modify rank		
	municipality	points	PO	municipality	points	PO
1.	Janov	6	304	Janov	5	304
2.	Široké	31	2408	Široké	35	2408
3.	Záborské	31	584	Záborské	19	584
	…	…		…	…	
104.	Šarišské Bohdanovce	244	695	Šarišské Bohdanovce	243	695
105.	Chmiňany	266	874	Chmiňany	267	874
106.	Bertotovce	271	485	Bertotovce	267	485

Source: Own calculations

Graph 1 from figure 1 shows the results obtained municipalities by population.

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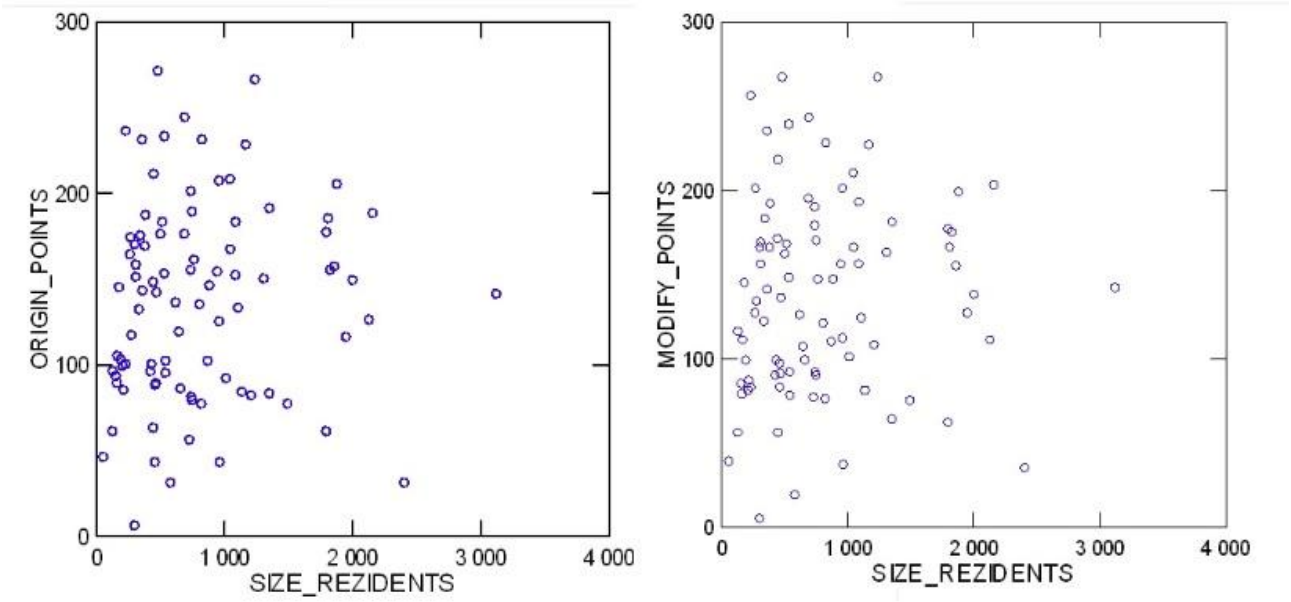

Fig. 1: Scatter plot of parameters the city population and the score
* for better illustration are the city with a population over 5000 eliminated
Source: Own calculations

The distribution of the monitored parameters indicates that it is not possible to image by a single regression function. Kendall correlation coefficient more closely monitors a correlation between monitored parameters. Simultaneously, coefficient Kendall-Stuartovo tau-c presents correlation between the score and a municipal size (a city population).

Table 7: Correlation matrix of municipal size and score – origin

Kendall's tau_b		Size	Score
Municipal size	Correlation coefficient	1,000	0,120
	Sig. (2-tailed)	.	,092
	N	91	91
Score	Correlation coefficient	,120	1,000
	Sig. (2-tailed)	0,092	.
	N	91	91

Source: Own calculations

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Table 8: Correlation matrix of municipal size and score – modify

Kendall's tau_b		Size	Score
Municipal size	Correlation coefficient	1,000	0,133
	Sig. (2-tailed)	.	,063
	N	91	91
Score	Correlation coefficient	,133	1,000
	Sig. (2-tailed)	0,062	.
	N	91	91

Source: Own calculations

Reliability calculated parameter does not allow drawing conclusions about the existence of links between those phenomena; even when a statistical confidence level of the correlation coefficient would indicate to statistical inconsistency of the phenomena.

4.1. Graphical representation of the results

In the spotted Prešov district was made the ideal variant, means the best values of indicators, which were reached in each of the municipalities in the same year. Following graphical image is describing the year 2012 – the ideal variant with the comparison of results from the best municipality to the worst municipality for the particular year. (fig. 2)

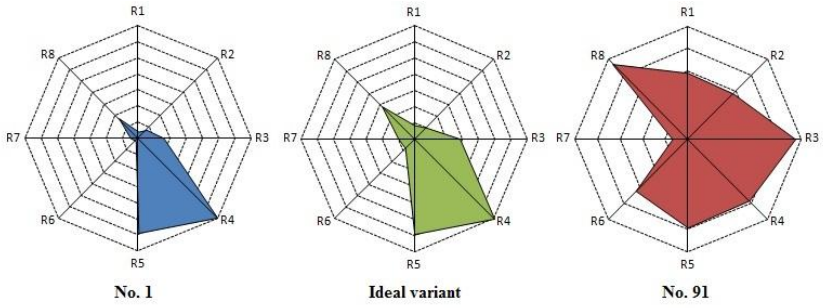

Fig. 2: Illustration of results in 2012

Source: Own calculations

The best municipality in Prešov district according to TOPSIS method was Geraltov (0, 843, resp. 0,881) for the year 2012. And the worst one was Bertotovce (0,232). Using modifies weight of indicators - the worst one was Rokycany (0,200).

As you can see the results of both municipalities differ from the ideal (fictive) variant while the deviations are shown in the figure 3.

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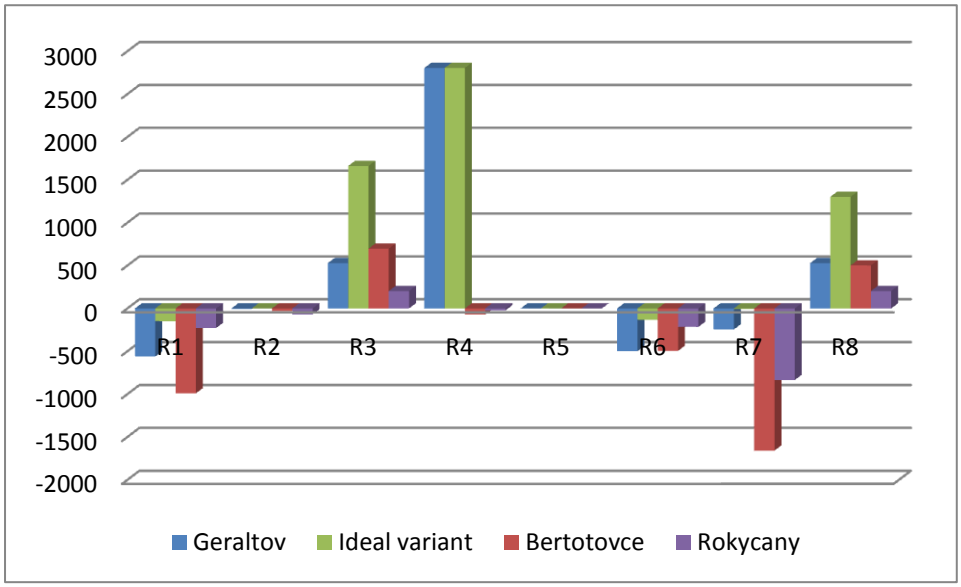

Fig. 3: Indicator comparison of selected municipalities in 2012

Source: Own calculations

5. Conclusions

In this study, TOPSIS technique was evaluated and compared using data obtained to assist decision making for selecting the most efficient municipality in selected district in the Slovakia (Prešov district). With the help of 8 chosen indicators it was evaluated the economy of 91 villages in the certain county for the particular section (2010-2012).

On the basis of the research we can conclude that the municipal size and classified by the applied procedures is not a link. Modified weights had an impact on the ranking each year. In order for the whole period 2010 - 2012 these differences were minimal.

TOPSIS and other MADM problem solving techniques can be used as accurate techniques for decision making in public economy. We expect the using of the method to evaluate villages of Prešov district and later also the Slovak republic.

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Values as Motivation Factors of Economic Behaviour

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Abstract.
The article presents a reflection on the structure of values functioning as motivators of economic behaviour. Considering the principle of rational egoism the author describes three segments of crucial values, which seem to be fundamental, as a matter of the contemporary Euro-American economic value system – freedom and justice; responsibility and confidence; progress, prosperity and rationality. An important methodological basis of presented reflection is the Ethics of social consequences – dynamically developing consequentialist ethical theory, responding to the challenges arising in the field of applied ethics in the framework of efforts to solve practical problems of today's world.

Keywords: values, economic behaviour, freedom, justice, responsibility, confidence, progress, prosperity, rationality

JEL Codes: A13, D03, M14, Z13

1. Introduction

When mapping dispersed and some what internally contradictory realm of values, we are confronted with the psychologically important fact tha values act as important motivational variables. In relation to human behaviour they act in relation to reflexes, instincts, archetypal influences, tendencies, needs, motives, desires, wishes, interests, goals, aspirations and ideals. This richset of motivational factors thus includes variables with a predominance of biological determination, together with the socio-culturally based motivational variables that affect the interaction of values, which may exhibit varying degrees of conscious, respectively subconscious influence (Putnová and Seknička, 2007, p. 60-63).

When evaluating and shaping the value orientation, as well as in case of the evaluation of economic categories, comes to the fore the fact that values are associated with human needs and interests. The needs quite clearly constitute a project basis of our activities and therefore of ten equate with value orientations, or in subjectivist interpretations even with values. They are being perceived mostly through culturally stabilized, institutionalized ways of satisfaction. Human societies vary in a manner of institutionalized ways of satisfaction, as well as in ways of institutionalization of value systems.

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Current form ofthe application of values in the economic sphere, as stated by several renowned authors, is in our civilization context basedon Euro-American value system for economic practice. Within this system there are incorporated primarily values as freedom, justice, responsibility, confidence, progress, prosperity, rationality. These basal values we can split into three segments in order to get a clear picture of the values in the context of our economic behaviour (Putnová and Seknička, 2007, p. 51-52). Consequently, in our text we will try to confront this value framework with the core value structure of the Ethics of social consequences and other concepts of ethical thinking. It is quite important to note that the concept of the Ethics of social consequences, as well as other forms non-utilitarian consequentialism, enter in to the outlined discourse as an attempt to bring new solutions to the traditional questions of consequentialist ethics, which utilitarianism cannot reliably answer (Gluchman, 1995, p. 108).

2. First segment –freedom and justice

The first segment is characterized by values of freedom and justice, which co-create a democratic society, open for business and the realization ofeconomic activities. These values are understood as the basis of legality and legitimacy of human action, while inp ractice the need to ensure a harmonious, balanced relationship of freedom and justice is being emphasized.

Freedom is a core value of practical human activities, in the most general sense it refers toone's ability to self-determine his actions and deeds, to act according to his own reasoning, based on his own decisions. Human creativity involves the ability to imagine, think through and implement something new. Michael Novak notes in this context that the Smithian question, what is the cause of the wealth of nations, can be answered very simply: intellect, ingenuity, inventiveness and human creativity. Human personality is the source of inventiveness, entrepreneurship and economic dynamics. Almost all the everyday little things that make our life more enjoyable are the fruits of economic creativity (Novak, 1996, p. 42-43). In the aforementioned "creative personality" of man we find the principle of freedom that naturally develops itself in conscience, investigations and actions, whilst creativity is a higher category than freedom. Creativity is bound to be free, but freedom must be subordinated to something else.

In the context of the Ethics of social consequences are creativity and productivity deducted from humanity, understood in terms of protection, support and development of human life, while the key moment here is the focus on human life. Positive social consequences, if they are achieved in accordance with the principles of humanity, law andjustice, then create good, which is a prerequisite for the development of man'screative powers.

This important role of creativity of a moral entity is related to the realization of dynamic stability as a prerequisite for the implementation of the successive steps leading to moral self-improvementas well as to moral development of mankind (Gluchman, 1999, p. 30-32).

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The dynamics o any economic system is thus essentially determined by the moral habits of citizens. Economic activities have their originin human freedom, which is understood as a moral dimension. Passive population, not benefiting from freedom, achieves in comparison with more enterprising population substantially lower range of economic activities. Moreover, virtues and the vices, characterizing population, define the profile of the economic constraints. History shows that the use of freedom affects not only the internal moral form of economic activity, but also economic results (Novak, 1996, p. 41).

Human activity always involves a moment of freedom and coercion, the only problemis whether in case of particular activity the degree of freedom prevails over degree of external compulsion. The freedom of choice comes along in the process of human activity (specifically in determining the objectives, the means by which we want to achieve the objective). However, the choice itself is only an objective precondition of freedom of man. The real human freedom begins in the subjective use of this objective possibility. Freedom of mandoes not consist only in understanding the necessity, because if one understands the necessity, emancipates only in the spiritual level (but not in the economic and socio-political level).

An economic subject may develop its individual freedom – to be creative, original and imaginative in economic activity, to acquire customers, traders, buyers, consumers in different ways, to conduct business meetings and relationships in various ways, which will distinguish him from the competition. But in the implementation of its business strategy and its objectives, the expression of individual freedom will end where the protected area of others begins (in the sense of negative expression of freedom). At the same time the freedom of action of an economic subject is limited not only by other entities, but also and in particular by legislation applicable for business.

Economic freedom an be characterized as well as the absence of government coercion or restriction of production, distribution and consumption of goods and services whose cope goes beyond what is necessary to protect and maintain the freedom of citizens. In other words, peopleare free to work, produce, consume and invest in ways that they believe are most productive. Any action of government includes coercion. If the state intervenes in the market environmentat a rate exceeding the protection of individuals and property, this intervention undermines economic freedom. Not only through the Public choice theory we know that if bureaucratic power restricts people, their behaviou changes for the worse. The degree of economic freedom is being reduced–and so are the prosperity and the level of economic activity.

Justice as avalue is associated with equality of general rules given by law and the general rules of conduct. In general, it is understood as equality, but not egalitarianism, which is inherently unfair. Between freedom and equality, there is often a contradiction, which comprises the development of personal freedom, mostly generating inequality. Promoting justice, however, often does not result in removal of material inequality, buton the contrary. Justiceis being in the commutative and distributive sense regarded as something that somehow restores balance and proportion.

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According to John Rawls, accentuating a macro-societal level, justiceis the framework of a democratic society. As the primary subject of political justice is yet considered the basic structure of society, namely the main political and social institutions and how they fit into each other, forming a unified system of cooperation. Rawls in his view on justice as fairness states that everyone has the unquestionable right to quite adequate scheme of equal basic liberties, while this scheme is compatible with the same scheme of liberties for all. Social and economic in equality would thus have to fulfil two conditions. They should be confined to offices and positions accessible for all underconditions offaire quality of opportunities and at the same time they should be as much as possible for the benefit of the least advantaged members of society (Rawls, 2007, p. 73-91).

While this often cited concept of justice means the realization of the principle of justice from above, the Ethics of social consequences emphasizes the micro-societal level, thus the implementation of the principle of justice from below – at the level of individual life of a moral entity, while trying to solve for example also issues related to interpersonal relations beyond the scope of the organization of a society (Gluchman, 1999, p. 33). Ethics of social consequences perceives justice as a prerequisite for the acceptance of individual freedom, which is conditional to the equality rights, as a provision of a moral right to a dignified life (including its economic and social aspects expressed in the form of legal rights), performed through the implementation of humanity and human dignity (this definition of justice is valid also on the macro-societal level). Any humane behaviour of a moral entity in order to achieve only the positive social consequences (or their predominance over the negative social consequences) is seen as fair (correct, moral and therefore praiseworthy). Any intentional behaviour of a moral entity, supporting in human econduct is unfair and therefore reprehensible. Proceedings leading to negative social consequences that occurunder the influence of external factors, which cannot be affected by acting entity are assessed as non-fair, incorrect as a matter of consequences, but not reprehensible in relation to the motives.Thus, if a moral entity acts freely, exercises its rights and at the same time does not harm, does not endanger, does not interfere with the rights of others in recognition of their dignity –then it acts justly, rightly, respectively morally and praiseworthy. Implementatio nof freedom and rights, bringing positive social consequences, is a precondition for justice – on the otherhand, their suppression is unfair (Platková Olejárová, 2011, p. 65-76).

Positive social consequences create conditions for the development of creative powers and abilities of man, as well as for the development of the creative potential of the community. However, this role may be filled by them only when resulting from fair decisions and actions – that means when they comply with humanity and legality. Justice in the Ethics of social consequences is thus a defining moment of goodness–a concrete assessment of humanity and legality of decisions and actions of a moral entity (Gluchman, 1999, p. 18-19).

Gary S. Becker points out in his Economic theory of discrimination on the key role of non-market factors (exclusion, barriers to education, caste systems, etc.) for maintaining a supportive environment for injustice

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and discrimination. Discriminationis from the perspective of this concept particularly harmful if it in certain groups suppresses stimuli to work and to invest in human capital. This happens in case of statistical discrimination when the approach to certain individuals is based on the average behaviour of members of the group to which they belong. An example would be the stereotypicalas sessment of employees by the employer according to their nationality, race, gender, but also for example depending on the college which they graduated from. This form of discrimination creates a stereotypical view of an individual based on group characteristics, reduces the incentives for self-improvement, which leads to re-strengthening of the original stereotype (Samuelson and Nordhaus, 2000, p. 252-253).

While older approaches, dealing with the elimination of injustice and discriminatory practices, stressed the elimination of unjust legal decisions and actions, respectively unfair treatment of individuals in the group processes, newer approaches favour particular requirements for the implementation of positive motivationin this respect.

3. Second segment –responsibility and confidence

The second segment of this value system includes values, without which the economy based on market principles could not work–responsibility and confidence. Both mentioned values are the foundation of all contractual relations and create conditions for fair competition, which is one of the essential components of market mechanism. They play an important role also in the construction of relational frameworks invarious legal forms of business, especially in case of companies operating on the basis of separated owner ship and management.

Responsibility as an ethical value has a very close relationship to freedom as the most important value of human experience. Legal, political and moral responsibility largely affects the daily decision-making, as well as human behaviour. Under conditions of market economy the voluntary economic transactions between market actors represent a large part of economic life. It is quite clear that freedom without responsibility increases the societal transaction costs, which can result in the form of negative externalities and overall inefficiency of the economic system.

The principle of responsibility is closely connected with the principle of justice, which actually determines the content of the responsibility principle. Moral responsibility is generally associated with the implementation of the principle of justice – that means with a conduct, which respects and affirms the fundamental moral values existing in human society. This regards particularly the ability of awareness of responsibility, calculating with this responsibility in the process of moral reasoning, or decision-making and subsequent proceedings in accordance with the awareness of responsibility.

Hans Jonasas signs another importantat tribute to responsibility, when he talks about it as about the correlate of power. The extent and type of power thus determines the extent and type of responsibility that comes with it. If power reaches certain dimensions, it changes not only in volume but also as a matter

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of quantitative nature of responsibility, so that actions of power create the content of obligation, which inherently becomes a response to what happened (Jonas, 1997, p. 190-191).

As a matter of determination of the subject of responsibility, there is no unity of opinion among the theoretical concepts dealing with the issue of responsibility in economic context. Within the development of views on responsibility in business we register two basic lines, respectively, two main optical modes–Stockholders theory and Stakeholders theory.

Milton Friedmanas the representative of the first of these concepts is of the opinion that the only social responsibility of business is efficient use of scarce resources and activities leading to increased profit of owners, while respecting the rules of the game established by the legal framework (Friedman, 1970). This approach to social responsibility in business is based on an assumption that competition removes from the market the undesirable forms of behaviour damaging market participants and the market itself. Since this approach concentrates on responsibility to owners (or shareholders generally) of enterprises, in the literature it is usually indicated by its name Stockholders theory.

Friedman has built his call into question of a broader corporate responsibility on several arguments. Enterprise as a legal person is understood by him as a social construct – artificial unit, while responsibility can be held only by a real person (e.g. entrepreneur or manager of corporation). Management of enterprise according to M. Friedman is a deputy of owners and its primary obligation is the responsibility to owners, not to a wider range of interest groups. The consideration and protection of non-shareholders interest groups would be practically happening at the expense of shareholders, who would have been then practically taxed by management (which is not within its remit). Stockholders theory thus encourages individual responsibility, because according to its arguments the idea of a broader concept of corporate social responsibility reduces economic freedom (thus damages the freedom of society) when the enterprise itself makes commitments which deforma pluralistic confrontation of interests (Putnová and Seknička, 2007, p. 128).

In the context of corporate social responsibility, conceived along the lines of Stakeholders theory, we understand the responsibility as principal relation of business to legal, respectively moral obligations imposed by law, contract, or other moral and social conventions and norms. The classification of corporate social responsibility is yet built on three pillars–economic, social and environmental. The very concept of stakeholder is within Stakeholders theory defined as a group, without support of which the organization could not exist. This term thus describes the relationship of business entity to internal and external social groups that are affected by the activities of organization, and which at the same time affect by their activities the operation of the organization. This includes owners (respectively shareholders), employees, managers, customers (respectively consumers), suppliers, creditors, competitors, government (respectively state authorities), regions, society. The enterpriseis understood here as a subject of responsibility–as a separate entity, which is responsible to particular stakeholders (participating groups) for real and for

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eseeable consequences of its actions. The purpose of business according to Stakeholders theory should therefore be to serve the interests of stakeholders.

Although the moral responsibility of any organization can not be clearly severable from its social responsibility, we can conclude that where as in case of corporate social responsibility we are stressing the role of a company in terms of its position and function in society, in case of moral responsibility it comes to consideration of the effects of its actions from the perspective of justice and fair treatment of all stakeholders. The central issue here is not just a question of participation on development of the whole society, the discourse is shifted exclusively to the sphere of moral values. The concept of responsibility relates here to moralliability for the acts and their consequences, as well as to the obligation of exposure to an informal positive or negative assessment of these acts. Approvingly with the concept of the Ethics of social consequences, we can conclude that expansion of the scale and scope of responsibility is now primarily based on rational egoism of man and mankind in general, which is to some extent influenced and strengthened also by a feeling offear. Compassion, mercy or charity, do not fulfil this role. Ethics of social consequences considers important to define the role of individuals in decision-making and action and subsequently on that basis to define the degree of moral responsibility for the activities of social groups (Gluchman, 2005, p. 23).

Hans Jonas emphasizes principally the future-oriented nature of responsibility. Human responsibility, which refers to mankind and nature, is in his opinion total, continuous and future-oriented. The future of nature and human society therefore constitutes an own future-oriented aspect of responsibility, while the whole scope of responsibility must be grasped in its historicity (Jonas, 1997, p. 37-42). Jonas'principle of responsibility is focused on the future (a prospective responsibility), while responsibility for the present andretrospective responsibility are getting into the background. Similar moments are present even in utilitarian concepts, for which the past is few interesting – decisive is the future. However, the responsibility for implementing the rights and dignity of manis directed primarily to the presence, while it necessarily includes the dimension of responsibility in relation to the future. Jonas'concept of responsibility thus accentuates mainly macro-societal dimension, which does not create enough space for the realization of responsibilityin everyday life of an individual or social community (Gluchman, 1999, p. 32-33).

From the perspective of the Ethics of social consequences, the obligation to present is over riding and the obligation to the future must be taken into account to not rule out its implementation. Int his context, the Ethics of social consequences speaks not about moral responsibility for the actions, but about moral responsibility fort he consequences that these actions will bring (Gluchman, 2005, p. 121).

Responsibility is closely linked with *confidence*, which can be understood as the degree of positive attitude of someone who believes in good faith and reliability of someone to whom he believes – even in risky and changing situations. Through confidence are the involved parties determined to continue with relationship as long as the counterparty behaves appropriately. This confidence is yet based on knowledge,

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experience and expectations. Without responsibility and confidence would not be possible to enter into contractual relations, to implement any consensus, based on conditional trust and accountability of involved parties (Putnová and Seknička, 2007, p. 58).

For example, relations of an organization and stakeholders (or interest groups) usually acquire the nature of legal or social contract, which includes a description of eventual sanctions fornon-compliance with contract terms. Any treaty, however, fails to capture and encompass the entire breadth and complexity of social relations. Reliability and trust, responsible approach to partners, correct conduct, an ability to not misuse current capabilities of a partner and like wise, are such phenomena that can not be decreed, or ordered. Conduct based on universal principles of morality is a matter being drawn upover the years by small, in terms of morality honest steps (Remišová, 2004, p. 60).

Modern theory of management, having its praxeological character, accentuates involvement (commitment) of employees in corporate activities, which presupposes their voluntary identification with the company, its goals and objectives. The key element, determining nature and quality of interpersonal relationships in the workplace and employee-employer relations, is from this point of view just confidence. Creating an atmosphere of confidence, particularly important in terms of motivating employees and managers means to ensure transparency and to strive for fair solutions of particular (not only) conflict situations.

4. Third segment – progress, prosperity and rationality

The third segment contains values the importance of which is associated with the dynamics of growth and economic development–progress, prosperity and rationality. In the context of the Ethics of social consequences we can consider them as values whose mission is to contribute to the realization of moral goodness. If humanity is understood as the behaviour and actions, leading to the protection and promotion, i.e. development of human life, the role of progress, prosperity and rationality will be closely linked to the performance of active humanity in order to achieve positive social consequences.

Progress is the fundamental value for economic growth and development at the macroeconomic and microeconomic level. Contemporary economy is in terms of its dynamics based on the creative process of entrepreneurial discovering, innovating and realization of new opportunities, replacing less productive activities by more efficient ones –the process that is driven by competition. Progress as a value is in the logic of this system as sociated with economic prosperity, expressing its relationship to economic success and general usefulness.

With a systematic definition of the content of category of progress we have been confronted in the works of Joseph Alois Schumpeter, whoin his Theory of economic development distinguished between static economic growth and dynamic economic development. Dynamic development is according to him caused by innovations, the bearer of which is an entrepreneur. Static economic growth, according to

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Schumpeter means only constant repetition of the same variables in production, as well as in consumption. Constantly repeated combinations of production factors at constant consumer preferences lead to a"steady state" which is characterized as quantitative economic growth. Development process, according to Schumpeter begins only when this steady state is disturbed by changes: "to produce means to combine things and forces that are within our reach – the form and content of development in our understanding are then given by aconcept: the enforcement of new combinations" (Schumpeter, 1987, p. 196-197). The market mechanism ensures that in a competitive environment new combinations are being implemented, while less efficient combinations are being eliminated and factors of production are with drawn to other usage. In the Schumpeterian sense then also the concept of market competition acquires new content. It is not understood as acompetition between the companies that are involved insteady economic growth, thus acompetition between identical goods, they manufacture. It is acompetition between innovated and original goods, the innovated and original production methods. It is therefore a distortion of stationary growth within the meaning of "the process of creative destruction." Innovations are therefore a content of changes that disturb the stationary steady economic growth and cause a dynamic economic development.

Economists are agreed that in the last decade of 20th century occurred in the economies of developed countries changes, the importance of which is often compared to the industrial revolution. These changes are associated with new technologies, whose impact on the reproductive process and economy is so significant that economic theory begins to assign to the classical production factors – labour, capital, land and natural resources also knowledge and innovations as a specific production factor. The impact of new technologies on the economy and the associated processes are considered as factors underlying the transition of economies to a new quality, in literature known as "new economy", "knowledge society," "information society," "knowledge economy," or "digital economy" (Lisý et al., 2005, p. 58).

In current conditions of new economy, accentuating the knowledge dimension of economic activities, *prosperity* is closely linked with *rationality* as the value of fundamental importance (Putnová and Seknička, 2007, p. 51-59). One of the first reactions within the economic thinking to the new effects of technological changes on the conduct of economic entities, functioning of markets and society as a whole, has been the Theory of rational expectations (Robert Lucas, Thomas Sargent, Robert Barro), which was formed already in the 1970s. It was the technological progress and the development of information technologies, which significantly reduced the time required for the exchange of information, and reduced the costs associated with their exchange and evaluation, and therefore made the main as sumption of rational expectations theorists more realistic – as according to them the economic a gents form their expectations rationally, evaluate all available information systematically and build them into their expectations about the future (Lisý et al., 2005, p. 59).

In the context of current economic and social realia, we can conclude that the above mentioned value segments currently determine majoritarian economic behaviour, as well as the development of economic systems and economic thinking primarily within Western civilization. Globally, it is important to note that

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this setting of value framework affects the value fundaments of economic systems outside of our civilizational context, but it is also being under influence of alternative value orientations, having their source in the context of different cultures. Thanks to acculturation processes, accelerated by globalization and interdependence of economies, innovations of the mentioned Euro-American system of values for economic practices are continuously going on, causing modifications in the details of its specific current forms, respectively its gradual re-composition.

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