

MIMICA MILOŠEVIĆ<sup>1</sup>  
AYBEYAN SELIMI<sup>2</sup>  
DUŠAN MILOŠEVIĆ<sup>3</sup>**INFORMATION FOR SUSTAINABLE  
DEVELOPMENT IN REPUBLIC OF  
MACEDONIA**

<sup>1</sup> University Union Nikola Tesla,  
Faculty of Construction  
Management, Belgrade,  
<sup>2</sup> International Vision University,  
Faculty of Informatics, Gostivar,  
<sup>3</sup> University of Niš,  
Faculty of Electronic Engineering,  
Niš

<sup>1</sup>mimica.milosevic@gmail.com

<sup>2</sup>aybeyan@vizyon.edu.mk

<sup>3</sup>dusan.milosevic@elfak.ni.ac.rs

**Abstract:** *Information for the sustainable development in Macedonia is insufficient. It is important to meet human needs and the needs of its environment for the sustainable development but raising awareness is the necessary assumption. The sustainable development has multidisciplinary nature, a concept that includes the economy, ecology, ethics, sociology, law and policy and links the well-being of present and future generations with the capacity and limitations of biosphere in a way to make the life more sustainable. The aim of this paper is to examine all these aspects and impact on raising awareness of the need for the sustainable development. Through various forms of the surveys in public sector, the primary and secondary school, the faculty, in health care and factories, offer people the ability to move in wide initiatives for the sustainable development. Based on the results of the survey, which was conducted in the municipality of Gostivar in the Republic of Macedonia, using statistical analysis, appropriate conclusions and proposals were performed.*

**Key words:** awareness, information, sustainable development

**INTRODUCTION**

Today, in addition to economic, social and environmental issues, as well as the responsibilities of people, companies and state governments, the sustainable development has become a process in the exploitation of resources and the management of investment [1]. Directing technological development means that the institutional changes must fit into the current and future needs. In a competitive business environment, economic, environmental and social factors are increasingly integrated into business strategies. Today, people and companies are open to innovation in adapting to the modern age and to the organization of work which is part of sustainable development both at national and international level. Sustainable development has brought of the new current trends, both to humans and the business world in the way of organizing work [2]. People today need to understand the risks and opportunities of sustainable development. They need a model and reorganization of work [4]. It is necessary to develop a strategy for concerted use of resources, investment, technical development [9]. Environmental protection, social and economic aspects of life today occupy more and more places in the agenda of heads of companies. Consumer behavior, market dynamics as well as the sustainability of products are the reasons, companies and countries to speed up their investments in this area. Sustainable development in this direction has become a part of corporate social responsibility that goes beyond the strategies and ways of doing business. Issues of sustainable development, both globally in Macedonia, provide competitive advantage to companies [6].

Although there are a lot of shortcomings, efforts by companies operating on these issues can be assessed as positive.

**The aim of scientific paper**

The main objective of this research on sustainable development is to reveal awareness about sustainable development in Macedonia and to discover whether people in Macedonia can understand the risks and opportunities that today provides sustainable development [5]. Regarding the implementation of sustainable development in the business sector, despite all the positive developments, in Macedonia there are still different opinions in understanding the concept of sustainability. There is a lack of trained people in awareness on this issue. However, strategies and plans in the field of sustainable development in the work of municipalities indicate significant progress. Our aim is to discover information and assessment of knowledge on sustainable development and proposing models that will be useful for the organization of work and improved information in sustainable development.

**METHODOLOGY**

The methodology consists of three parts: the preparation the survey, the survey of the target group and statistical analysis by SPSS 19 and appropriate mathematical analysis with reference [3], [8]. The survey consists of 30 questions. According to similar surveys we can say that the survey consists of a sufficient number of questions. The most important reason for the preparation of the survey with such questions is to examine the level of knowledge and

experience for a sustainable development. The survey of the target group has been made in print on A4 paper, open character and was carried out in the workplace. In total, 250 people of different age and sex was surveyed. The survey was completed by all employees in the institutions vertically, high school students and college students. The survey was conducted on a total of 40 high school students and 40 university students, 20 secondary school teachers, 10 primary school teachers, two mayors, 40 municipal employees, 20 professors and 10 assistants faculty, 30 staff in the hospital and 48 people from the rural and urban environment in Macedonia.

**Hypothesis**

The assumption is that awareness about sustainable development in Macedonia is not satisfactory and with the appropriate conclusions should offer proposals to launch a broad initiative, for better information on sustainable development and active participation in its implementation.

**Assignments**

Conceptual evaluation of sustainable development has become our main strategy and guidance for data collection and process analysis. The tasks are grouped into seven following areas:

1. Conceptual issues of sustainable development
2. Sustainable Development Strategy
3. Engaging stakeholders
4. Operations and business processes
5. Data collection, measurement and evaluation
6. Protecting the environment
7. Report

**RESULTS**

Survey results are based on the questionnaire of survey so that database is formed in the software package SPSS 19 (Statistical Package for the Social Sciences) [7]. Each questionnaire is reviewed individually. Questionnaire revision, on the basis of data collected in the phase of evaluation, was not performed because it was established that there were no survey sheets with illogical answers. Evaluation is performed on 250 respondents.

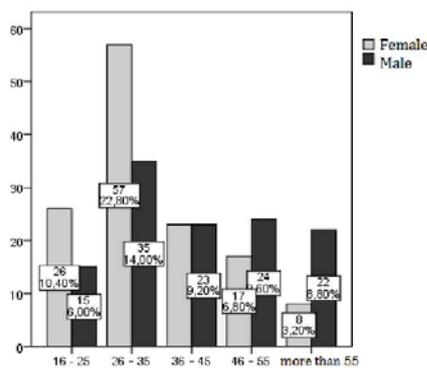


Figure 1. Number of respondents by gender

The research was carried out on the basis of gender, age groups, education levels and profiles. Assessment survey was based on variables gender, age and workplace where are employed respondents. Number of respondents according to sex and age in the number and percentage is shown in Figure 1.

**The meaning of the concept of sustainable development for respondents**

From Figures 2 and 3 can be seen that the most common respondents' answer to the question about their opinion on sustainable development, was society development which meets the daily needs of the people.

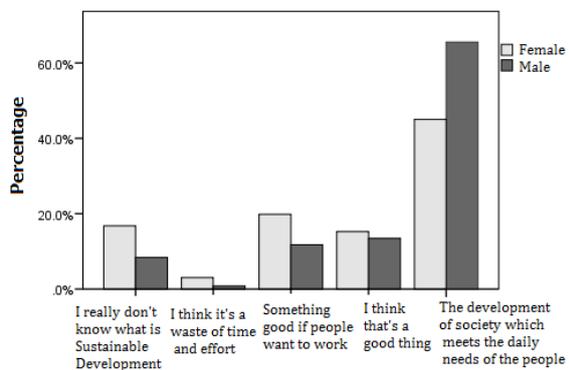


Figure 2. The chart of the thought for the sustainable development by gender

Chi-square test showed a statistically significant difference by gender of respondents ( $\chi^2=12.432$ ,  $df=4$ ,  $p = 0.014 < 0.05$ ) compared to what the concept of sustainable development represents for them.

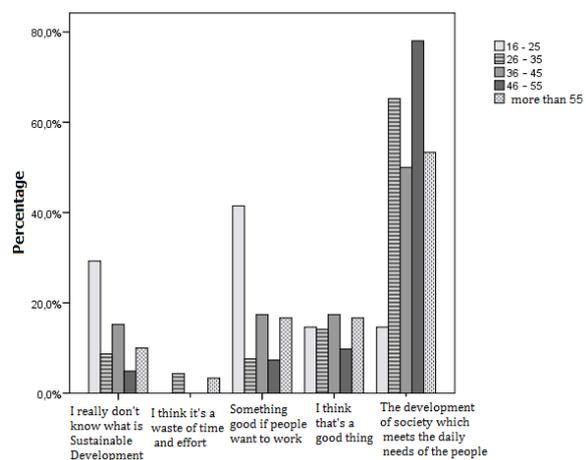


Figure 3. The chart of opinions on sustainable development by age

Chi-square test showed a statistically significant difference ( $\chi^2= 59.478$ ,  $df = 16$ ,  $p = 0.000 < 0.05$ ) compared to what represents for them the concept of sustainable development by age groups. Among the respondents, 65.2% of respondents from the 26 - 35

years and 78% of 46 - 55 years old consider that the development of societies meet people's needs, while 41.5% of respondents from the 16 - 25 age think that sustainable development is good thing (Figure 3).

### Knowledge of respondents on Sustainable Development

Among female respondents 27.5% consider that their knowledge of sustainable development is good and the same number thinks that their knowledge is not enough. Only 12.2% of females consider their knowledge of sustainable development excellent. Among men, 14.3% consider their knowledge insufficient, and 23.5% that their knowledge is good. Only 20.2% estimated that their knowledge of sustainable development is excellent (Figure 4).

Chi-square test hasn't showed statistically significant difference ( $\chi^2=9.459$ ,  $df=4$ ,  $p=0.051>0.05$ ) in knowledge about sustainable development in relation to the set of male and female respondents.

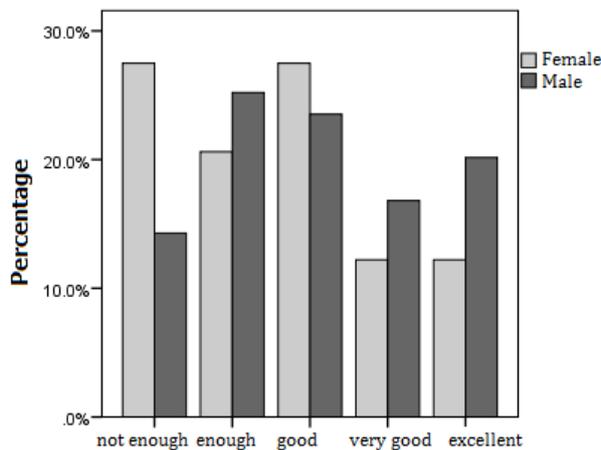


Figure 4. The chart of knowledge for sustainable development by gender

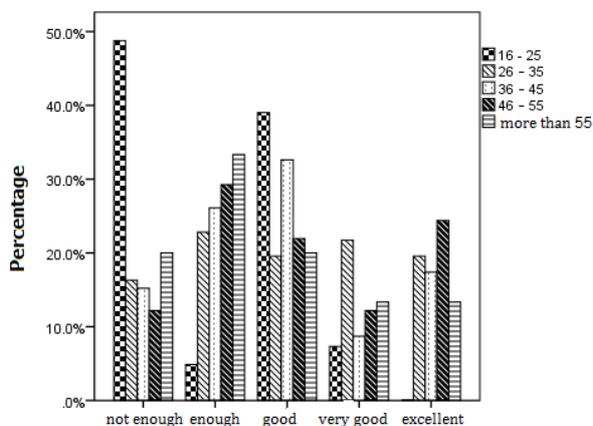


Figure 5. The chart of assessments of knowledge on sustainable development by age group

Observed by age, it is notable that among the youngest respondents, from 16 - 25 years, 48.8% considered their knowledge insufficient, and none of the respondents has assessed their knowledge of sustainable knowledge-excellent. This points to the awakened awareness of the need to learn more about sustainable development (Figure 5).

Chi-square test has showed statistically significant difference ( $\chi^2=47.336$ ,  $df=16$ ,  $p=0.000 < 0.05$ ) in knowledge about sustainable development subjects by age groups.

### Education for Sustainable Development

41.2% of the female respondents consider that they have learnt nothing about sustainable development in the current education, and 48.9% that they have learned something, which points to the fact that the vast majority of female respondents is dissatisfied with the education on sustainable development. Among male respondents, the situation is slightly better, 19.3% believes that they have learned nothing, while 52.9% claims that they have learned something (Figure 6). To what extent the current respondents' education has impact on the knowledge of sustainable development, chi-square test showed a statistically significant difference ( $\chi^2=22.491$ ,  $df=3$ ,  $p=0.000<0.05$ ) of respondents by gender.

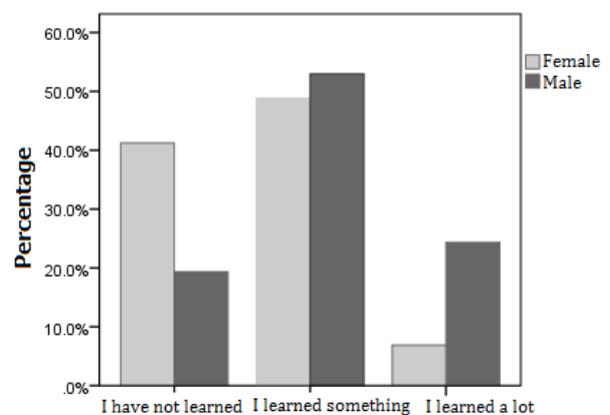


Figure 6. The chart of education for sustainable development by gender

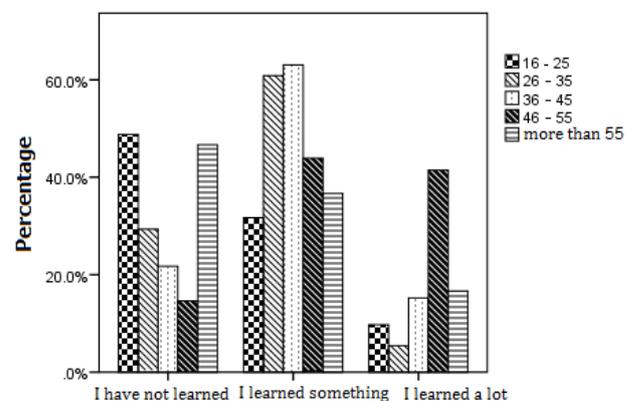


Figure 7. The chart of education for sustainable development by age group

By age structure of the respondents in the group of 16 - 25 years, 48.8% said they have not learned anything in the current education, and only 9.8% has learned a lot about sustainable development. With the age the percentage of those who think they have not learned anything in the current education decreases to 14.6% in the age group 46 - 55 years. Similarly, the percentage of those who believe that they have learned a lot in the current education rises to 41.5% in the age category of 46 - 55 years. It is interesting that among the oldest respondents, over 55 years, the situation is similar among the youngest respondents, where 46.7% thinks that they have learned nothing, and 16.7% that they have learned a lot (Figure 7).

Chi-square test showed a statistically significant difference ( $\chi^2=54,072$ ,  $df=12$ ,  $p=0,000 < 0,05$ ) in the education of respondents by age group.

### Training for the Sustainable Development

For female respondents, 74.8% of them claimed that they had never had training about the sustainable development, and only 9.9% had training several times. For men, 55.5% said they had never had training, but 14.3% of these had several times (Figure 8).

Chi-square test showed a statistically significant difference ( $\chi^2=10.798$ ,  $df=2$ ,  $p=0.005 < 0.05$ ) in training on sustainable development for respondents by gender.

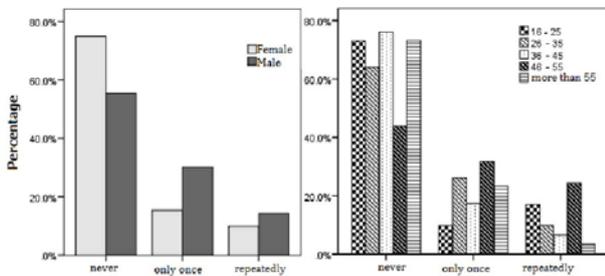


Figure 8. The chart of training for sustainable development by gender and age group

Observed by age groups, we can see that the only age group of 46 - 55 years differs from the others in the percentage of those who had been trained so far about the sustainable development. In this group, only 43.9% said they had never had training, while the other groups have similar percentage, in the youngest group of 16 - 25 years 73.2% said they had never had training, in a group of 26 - 35 years 64.1%, in the group of 36 - 45 years 76.1%, and in the oldest group over 55 years of 73.3%.

Chi-square test showed a statistically significant difference ( $\chi^2=19.502$ ,  $df=8$ ,  $p=0.012 < 0.05$ ) in training on sustainable development for respondents by age groups.

### Exploitation of natural materials for the benefit of people

From the Figure 9 we can see that the dominant responses in both sex was that respondents had a neutral attitude (35.1% female and 30.5% male respondents) and to fully agree with the use of natural materials (38.7% female and 21% male of respondents).

For the exploitation of natural materials in the benefit of people, chi-square test of respondents by gender showed a statistically significant difference ( $\chi^2=12.982$ ,  $df=4$ ,  $p=0.012 < 0.05$ ).

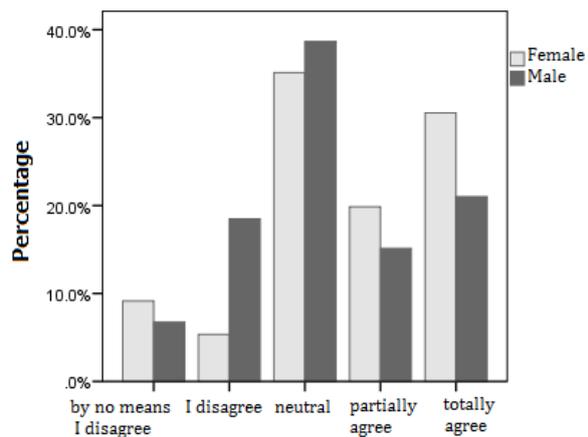


Figure 9. The chart of exploitation of natural materials for the benefit of human by gender

Looked by age structure from Figure 10, we can see that in the oldest age group over 55 years even 80% of respondents has a neutral stance on this issue. It is interesting that 22% of the youngest age group of 16 - 25 years does not agree with the policy of exploitation of natural materials for the benefit of man, and that none of the respondents of the oldest age group had that opinion.

Chi-square test has showed a statistically significant difference ( $\chi^2=53.982$ ,  $df=16$ ,  $p=0.000 < 0.05$ ) for exploitation of natural materials for benefit of human by age groups.

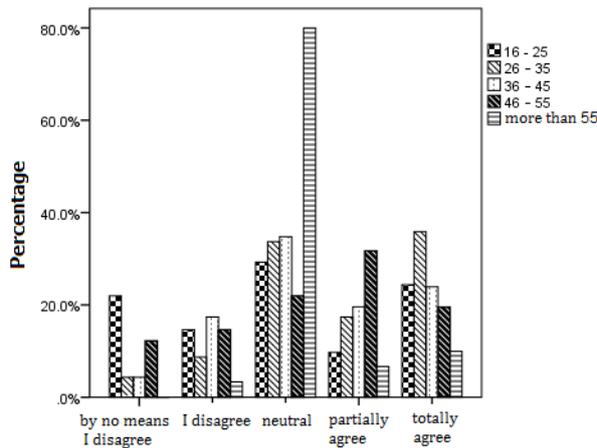


Figure 10. The chart of exploitation of natural materials for benefit of human by age group

### The impact of investment of public sector in Macedonia on sustainable development

For female respondents, 34.4% considers that they don't know anything about investment, a 47.3% that these investments are small. In men, 16% claimed they don't know about investment, and 72.3% that these investments are small (Figure 11).

Chi-square test showed a statistically significant difference ( $\chi^2=16.548$ ,  $df=2$ ,  $p=0.000 < 0.05$ ).

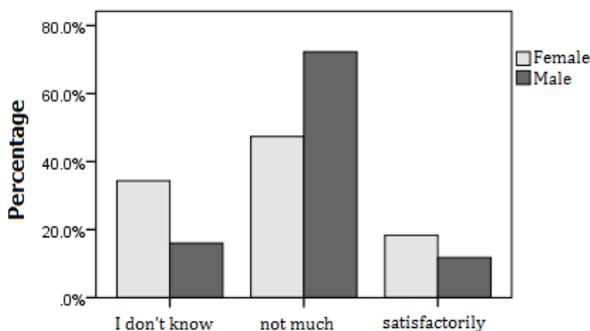


Figure 11. The chart of impact of the public sector in Macedonia on the sustainable development by gender

With respect to age, the youngest category does not know about the investments of the government sector. It is interesting that none of the respondents in the youngest and the oldest category has responded that these investments are satisfying (Figure 12).

Chi-square test showed a statistically significant difference ( $\chi^2=43.686$ ,  $df=8$ ,  $p=0.000 < 0.05$ ) by age group.

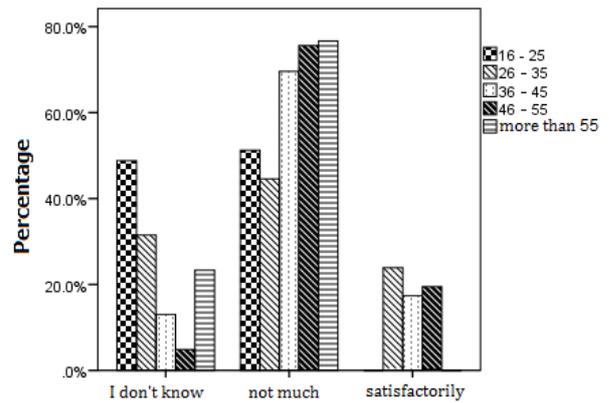


Figure 12. The chart of impact of the public sector in Macedonia on the sustainable development by age group

### The strategy of Macedonia for Sustainable Development

The respondents' opinion on this issue is that 68.1% of male respondents consider that Macedonia does not have a strategy for sustainable development, while 73.3% of female respondents don't know whether Macedonia has a strategy for sustainable development. Analysis of the survey results, using chi-square test has showed a statistically significant difference on this issue ( $\chi^2=26.686$ ,  $df=3$ ,  $p=0.000 < 0.05$ ).

Observed by the age, it can be seen that the youngest category, in the highest percentage 61%, doesn't know that Macedonia has a strategy for sustainable development, while only 7.3% of respondents in the category of 46 - 55 years has the same opinion.

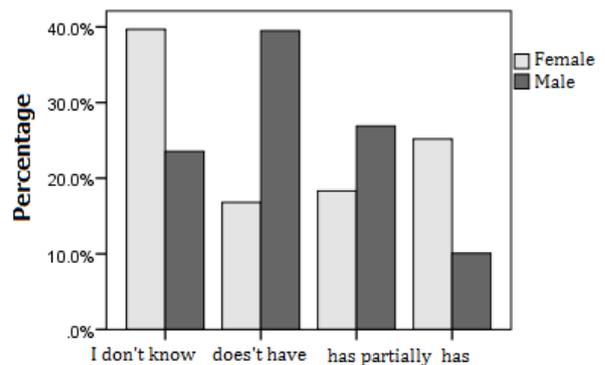


Figure 13. The chart of opinion of a strategy for sustainable development by gender

Chi-square test showed a statistically significant difference ( $\chi^2=41.913$ ,  $df=12$ ,  $p=0.000 < 0.05$ ) by the age group.

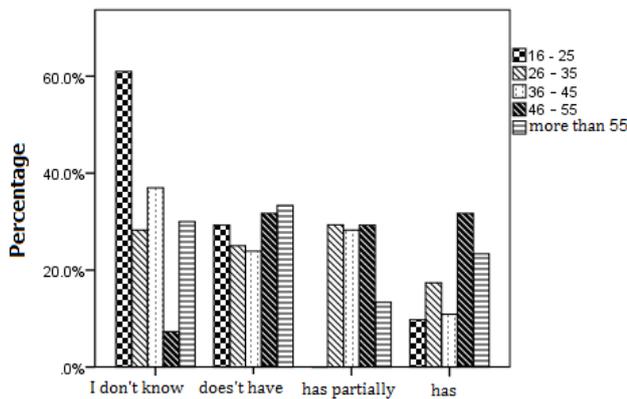


Figure 14. The chart of opinion of a strategy for sustainable development by age group

## DISCUSSION

As a result of this survey, we have gotten that awareness on sustainable development in Macedonia is not good. The female respondents do not know whether the authority has to do with sustainable development, while the majority of male respondents think partially has to do. From the standpoint of law, the females do not know whether the authority has to do with sustainable development, while most men think that partially has to do. Most female respondents do not know whether the competition has to do with sustainable development while the majority of men think that competition has a lot to do with sustainable development. For eco productivity, majority females do not know whether it has to do with sustainable development while the majority of male respondents thinks that partly it has to do with sustainable development. Most female respondents do not know whether the sustainable development provide new opportunities for employment while most males think that sustainable development has to do in part to the creation of new employment opportunities. The female respondents do not know that advertising and public opinion have to do with sustainable development, while the majority of male respondents considered that these two features partly have to do with sustainable development.

Based on the results of the survey, we conclude that the male respondents are better informed than female ones, while in relation to the age difference in the survey we have received as a result that the best-informed are the people from the group of 26 - 45 years. The high school students and university students are not well informed about sustainable development. While in Macedonia since 2010/2011 school year in all subjects of the curriculum for secondary education, teachers must have planned at least two topics from eco standards, the results show that the implementation of these activities go slowly and that there is no impact on the understanding of students on sustainable development. Eco standards for secondary education consist of four thematic chapters: energy savings, water savings, maintenance of school buildings and healthy

environment and clean schoolyard. Obviously this is not enough to establish the knowledge and habits among students.

Today our society, due to the level of education and structural characteristics, lives insufficiently interested in the environment. In addition to its property, the individuals are not interested in environment protection and the biodiversity. The reason for this is lack of knowledge on sustainable development. That's why it is necessary to organize training in all levels of education. To determine the real situation in society should be included in the activities of non-governmental organizations for sustainable development. All activities for the solution of environmental problems and environmental protection must be in control and in case of non-compliance there must be ways of sanctions.

## CONCLUSION

In this paper for assessing the results of the survey we have applied the Pearson chi-square test. The results confirm the initial hypothesis about the lack of information on sustainable development in Macedonia. On the basis of the questions in the survey the priority point for raising awareness have been given and habits for sustainable development. It is necessary to introduce the theme of sustainable development into the curricula of most cases of primary and secondary schools. The faculties should be organized activities in ecology and organize lectures at least once per semester on sustainable development. The companies must plan the annual program taking into account sustainable development, and encouraging each company to have a person responsible for sustainable development. It is necessary to involve the private sector in activities for sustainable development at both local and central level. The biggest drawback in Macedonia is that there is not enough guidance and funding for research and the promotion of sustainable development. It needs to develop stronger connection between companies, municipalities, schools and institutions that care about health, in order to promote sustainable development

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## INFORMISANOST ZA ODRŽIVI RAZVOJ U REPUBLICI MAKEDONIJI

*Mimica Milošević, Aybeyan Selimi, Dušan Milošević*

**Rezime:** *Održivi razvoj je koncept multidisciplinarnе prirode koji uključuje ekonomiju, ekologiju, etiku, sociologiju, pravo i politiku i povezuje blagostanje sadašnjih i budućih generacija sa kapacitetima i ograničenjima biosfere, na način da život učini održivim. Cilj ovog rada je sagledati sve te aspekte i ukazati na potrebu i značaj informisanja za razvoj javne svesti o problemima održivog razvoja. S tim u vezi, u Republici Makedoniji je realizovano empirijsko istraživanje (Gostivar) koje je omogućilo donošenje određenih zaključaka i predloga.*

**Ključne reči:** informisanost, svest, održivi razvoj.

## BIOGRAPHY

**Mimica Milošević** is associate professor at the University Union Nikola Tesla in Belgrade (Faculty of Construction Management, Faculty of Ecology and Environmental Protection). She is the author or co-



author of several scientific papers published in scientific journals and proceedings of scientific conferences, as well as textbooks. Among the published papers, seven papers were published in International journals from the SCI (Science Citation Index) list, with a total impact factor 51 on SCI list. She has participated in the realization of several scientific research projects. She worked at the Faculty of Philosophy in Nis, as well as at the Faculty of Sciences and Mathematics in Nis.

Area of interest: numerical mathematics, multi-criteria analysis, applied mathematics in construction, ecology and environmental protection.