## Allocation of human resources for accurate management of the environment in the municipality

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#### Abstract

An important function in every organization is the management of human resources. The problem treated in the master's thesis is: the inadequate allocation of human resources in the municipality reflects negatively on the management of environmental protection activities. The phenomenon (area) of research in this paper is: management of intellectual capital. The wholes are in harmony with the problem, which in individual parts is scientifically and expertly researched and explained, with the aim of a more exact understanding of the subject of research. The protection of the environment is a topic that is increasingly imposed and affects all citizens without exception. The long-term neglect of the environment has led to a situation in which citizens will wonder what kind of air they breathe, what kind of food they eat and what kind of water they drink. Of course, the question of the appearance of the environment seriously concerns them. For the conducted research, a survey questionnaire was specially prepared for the employees in the municipalities of Skopje. The research included 100 respondents from among the employees randomly selected from different positions in the organizational structure. The survey was conducted in the month of May, 2023. The survey questionnaire is of closed type. The research instruments that were used during the research, as well as a tabular display of the final results obtained in each part of the research procedure, are attached to the paper in its entirety. A tabular display is also shown for grouped data in the interest of proving the variables, and thus the hypotheses.

**Key words:** management, allocation of human resources, social responsibility, living environment

## Introduction

An important function in every organization is the management of human resources. Considering the fact that it is the most important resource in the organization, it is clear what attention should be paid to the overall management of human resources, from their planning, recruitment, selection, work introduction, development and allocation, and until retirement.

Ethics represents the concept of behavior that makes us investigate what is right and what is wrong in our daily behavior. Promoting an atmosphere of trust in the organizational environment seems to depend more and more on adherence to a set of rules and principles of conduct, which will advocate the ethical values shared by company members. Business ethics is a way of assembling, conceiving, communicating,

performing things in harmony with the sociological, spiritual, natural and biological laws of man and the environment, or simply, business ethics is declared as the natural management of things, that is, working in harmony with nature. As subjects of business ethics include: the individual, the legal entity, business culture and work processes, and the environment. [1, 2, 3].

The environment is not just nature or animals in their usual natural state as many people think. It is about all the physical, chemical and biological elements with which living beings interact. Therefore, the environment is not only the physical environment that we think exists, but also includes intangible elements such as tradition. In order to see everything more simply and clearly, we distinguish:

- Natural environment This type collects everything that is flora, fauna, climate, geography and everything that is present naturally.
- Cultural environment Here is everything that is artificially created by humans along with their socio-economic activities.

One of the central topics of today is environmental protection. The economic activity and environment are closely related. The living environment is often subjected to various dangers, pollution, damage, and this can significantly affect the quality of life of people and the realization of everyone's right to a healthy environment. Therefore, first of all, through legislation, it is necessary to protect the environment, using various legal instruments. [4]

The concept of social responsibility is defined as the relationship of the organization towards internal and external stakeholders, grouped in five basic areas like: relation to people, relation to the community, relation to the market, relation to the environment, and relation to capital. Organizations develop different strategies for dealing with social needs, the natural environment and other organizations. The success of the organizations' work is also measured by how successfully they implement the concept of social responsibility in their strategy and in their daily activities. [5]

#### Methodological approach to research

The research that is the goal of this paper has the task of proving or rejecting the assumption that the appropriate allocation in the municipalities reflects positively on the management of environmental protection activities. For this purpose, a hypothetical framework has been developed that includes all the relevant elements of scientific research: subject, problem, phenomenon, goals, dynamics and research sample, hypothetical framework, independent and dependent variables, as well as the indicators used to prove them.

The paper conducts research in which it is revealed how much the municipality contributes by managing adequate human resources for educating the population about socially responsible behavior in the direction of environmental protection, whether it undertakes activities that help and encourage the population to behave socially responsible towards the environment, whether it contributes to cleaner air and it protection of water resources, as well as how much he cares for a cleaner and neater living environment.

In this research, two goals are set: a scientific and a practical goal. The scientific goal of the research is to gain new knowledge about the researched area, which is the allocation of appropriate human resources for environmental protection. The practical goal resulting from this research is to make the obtained results available to the stakeholders, so that they can improve the efficiency of their work based on them.

## Discussion and results

The research was conducted in the municipalities of the territory of the city of Skopje. The attitudes of 100 respondents, employed in various positions in the investigated municipalities, were investigated. The questionnaire was purposely prepared to prove the

hypotheses set in the hypothetical framework of the paper. The survey was conducted in the first half of May, 2023. In the empirical part, the research technique is used: surveying, interviewing, and as a measuring instrument is used: survey questionnaire with 30 closed questions and a focused interview protocol with 5 questions, one for each set variable from the hypothetical framework. The questionnaires are of a closed type, and respondents can answer with one answer from the three offered answer options: Yes, Partially, and No. The results are presented in tables.

The first question from the survey questionnaire, which reads: The municipality in which I work has adequate human resources for all activities under its jurisdiction, was answered with YES - 22 respondents or 22%, with PARTIALLY - 48 respondents or 48%, with NO - 30 respondents 30%.

Table no. 1 – Answers to question no. 1

The municipality where I work has adequate human resources for all activities under its jurisdiction  Answers					
Question No.	Question No. Yes Partiall No Total y				
	22	48	30	100	
	22%	48%	30%	100%	

The second question from the survey questionnaire, which reads: The municipality where I work has adequate human resources that manage the environmental protection sector, was answered with YES - 53 respondents or 53%, with PARTLY - 22 respondents or 22%, with NO - 25 respondents 25%.

Table no. 2 – Answers to question no. 2

The municipality where I work has adequate human resources that manage the environmental protection sector  Answers				
Question No.	Yes	Partiall y	No	Total
	53	22	25	100
	53%	22%	25%	100%

To the third question from the survey questionnaire, which reads: The municipality in which they work hires people from the environment to perform some activities that are in the interest of maintaining a healthy living environment, answered with YES - 26 respondents or 26%, with PARTIALLY - 29 respondents or 29%, with NO - 45 respondents 45%.

Table no. 3 – Answers to question no. 3

The municipality in which they work hires people from the environment to perform some activities that are in the interest of maintaining a healthy living environment						
Answers						
Question No.	uestion No. Yes Partiall No Total					
3	3 у					
26 29 45 100						
	26%	29%	45%	100%		

The fourth question from the survey questionnaire, which reads: The municipality where I work is involved in joint activities with the companies operating in our territory, was answered with YES - 47 respondents or 47%, with PARTIALLY - 32 respondents or 32%, with NO - 21 respondent 41%.

Table no. 4 – Answers to question no. 4

The municipality where I work is involved in joint activities with the companies operating in our territory  Answers				
Question No.	Yes	Partiall y	No	Total
	47	32	41	100
	47%	32%	41%	100%

To the fifth question from the survey questionnaire, which reads: The municipality where I work is trying to bring new knowledge on the topic of environmental protection through staff education, 32 respondents or 32% answered with YES, with PARTIALLY - 43 respondents or 43, with NO – 25 respondents 25%.

Table no. 5 – Answers to question no. 5

The municipality where I work is trying to bring new knowledge on the topic of environmental protection through staff education  Answers						
Question No.	Yes	Partiall	No	Total		
5		У				
32 43 25 100						
	32%	43%	25%	100%		

The sixth question from the survey questionnaire, which reads: The municipality where I work hires experts who help it to maintain the environment, answered with YES - 35 respondents or 35%, with PARTIALLY - 46 respondents or 46%, with NO - 19 respondents 19

Table no. 6 – Answers to question no. 6

The municipality where I work hires experts who help it to maintain the environment  Answers					
Question No.	Yes	Partiall y	No	Total	
	35	46	19	100	
	35%	46%	19%	100%	

To the seventh question from the survey questionnaire, which reads: My municipality cooperates with the educational institutions that work in its territory, 62 respondents or 62% answered YES, PARTIALLY - 20 respondents or 20%, NO - 18 respondents 18%.

Table no. 7 – Answers to question no. 7

My municipality cooperates with the educational institutions that work in its territory  Answers				
Question No.	Yes	Partiall y	No	Total
	62	20	18	100
	32%	20%	18%	100%

To the eighth question from the survey questionnaire, which reads: When it comes to environmental protection, the municipality knows that it should be involved in educational activities with the population, 46 respondents or 46% answered with YES, with PARTIALLY - 22 respondents or 22%, with NO - 32 respondents 32%.

Table no. 8 – Answers to question no. 8

When it comes to environmental protection, the municipality knows that it should be involved in educational activities with the population  Answers						
Question No. Yes Partiall No Total y						
46 22 32 100						
	46%	22%	32%	100%		

The ninth question from the survey questionnaire, which reads: The municipality prints propaganda material for educating the population on environmental protection, was answered with YES - 25 respondents or 25%, with PARTIALLY - 34 respondents or 34%, with NO - 41 respondents 41%.

Table no. 9 – Answers to question no. 9

The municipality prints propaganda material for educating the population on environmental protection						
Answers						
Question No.	tion No. Yes Partiall No Total					
9		У				
	25	34	41	100		
	25%	34%	41%	100%		

The tenth question from the survey questionnaire, which reads: The municipality participates in educational activities for educating the population on environmental protection, was answered with YES - 25 respondents or 25%, with PARTIALLY - 34 respondents or 34%, with NO - 41 respondents 41%.

Table no. 10 – Answers to question no. 10

The n	nunicipality	participates	in	educational	activities	for		
educating the population on environmental protection								
Answe	Answers							

Question No.	Yes	Partiall	No	Total
10		У		
	25	34	41	100
	25%	34%	41%	100%

Table no. 11 – Answers to question no. 11

The eleventh question from the survey questionnaire, which reads: The municipality participates in fun activities for educating the population on environmental protection, was answered with YES - 25 respondents or 25%, with PARTIALLY - 34 respondents or 34%, with NO - 41 respondents 41 %.

The municipality participates in fun activities for educating the population on environmental protection  Answers				
Question No.	Yes	Partiall y	No	Total
	25	34	41	100
	25%	34%	41%	100%

To the twelfth question from the survey questionnaire, which reads: The municipality and schools with joint activities educate children about the need to care for the environment, answered with YES - 42 respondents or 42%, with PARTIALLY - 34 respondents or 34%, with NO - 24 respondents 24%.

Table no. 12 – Answers to question no. 12

The municipality and schools with joint activities educate children about the need to care for the environment  Answers				
Question No.	Yes	Partiall	No	Total
12		у		
	42	34	24	100
	42%	34%	24%	100%

The thirteenth question from the survey questionnaire, which reads: The municipality largely contributes to the positive behavior of citizens towards the environment, was answered with YES - 35 respondents or 35%, with PARTIALLY - 46 respondents or 46%, with NO - 19 respondents 19%.

Table no. 13 – Answers to question no. 13

The municipality largely contributes to the positive behavior of citizens towards the environment						
Answers						
Question No.	Question No. Yes Partiall No Total					
13		У				
	35	46	19	100		
	35%	46%	19%	100%		

The fourteenth question from the survey questionnaire, which reads: On the territory of our municipality, people are hired to maintain hygiene, answered with YES - 100 respondents or 100%, with PARTIALLY -0 respondents or 0%, with NO - 0 respondents 0%.

Table no. 14 – Answers to question no. 14

On the territory of our municipality, people are hired to maintain hygiene  Answers				
Question No.	Yes	Partiall y	No	Total
	100	0	0	100
	100%	0%	0%	100%

The fifteenth question from the survey questionnaire, which reads: On the territory of our municipality, there are enough trash cans, answered with YES - 78 respondents or 78%, with PARTIALLY - 12 respondents or 12%, with NO - 10 respondents 10%.

Table no. 15 - Answers to question no. 15

On the territory of our municipality, there are enough trash cans					
Answers	Answers				
Question No.	Yes	Partiall	No	Total	
15		У			
	78	12	10	100	
	78%	12%	10%	100%	

The sixteenth question from the survey questionnaire, which reads: In the territory of our municipality, the trash cans are regularly cleaned, answered with YES - 78 respondents or 78%, with PARTIALLY - 12 respondents or 12%, with NO - 10 respondents 10%.

Table no. 16 – Answers to question no. 16

In the territory of our municipality, the trash cans are regularly cleaned						
Answers						
Question No.	Question No. Yes Partiall No Total					
16 <b>y</b>						
78 12 10 100						
	78%	12%	10%	100%		

To the seventeenth question from the survey questionnaire, which reads: On the territory of our municipality there are organized parks for children, answered with YES - 68 respondents or 68%, with PARTIALLY - 22 respondents or 22%, with NO - 10 respondents 10%.

Table no. 17 – Answers to question no. 17

On the territory of our municipality there are organized parks for children	
Answers	

Question No.	Yes	Partiall	No	Total
17		У		
	68	22	10	100
	68%	22%	10%	100%

To the eighteenth question from the survey questionnaire, which reads: On the territory of our municipality there are organized promenades for citizens, 68 respondents or 68% answered YES, PARTIALLY - 22 respondents or 22%, NO - 10 respondents 10%.

Table no. 18 – Answers to question no. 18

On the territory of our municipality there are organized promenades for citizens				
Answers				
Question No.	Yes	Partiall	No	Total
18		У		
	68	22	10	100
	68%	22%	10%	100%

The nineteenth question from the survey questionnaire, which reads: I consider that I live in a municipality that is a pleasant place to live, was answered with YES - 68 respondents or 68%, with PARTIALLY - 22 respondents or 22%, with NO - 10 respondents 10%.

Table no. 19 – Answers to question no. 19

I consider that I live in a municipality that is a pleasant place to live						
Answers						
Question No.	Question No. Yes Partiall No Total					
19		У				
	68	22	10	100		
	68%	22%	10%	100%		

The twentieth question from the survey questionnaire, which reads: The municipality in which they work undertakes activities for cleaner air, was answered with YES - 58 respondents or 58%, with PARTIALLY - 24 respondents or 24%, with NO - 18 respondents 18%.

Table no. 20 – Answers to question no. 20

The municipality in which they work undertakes activities for cleaner air  Answers				
Question No.	Yes	Partiall y	No	Total
	58	24	18	100
	58%	24%	18%	100%

The twenty-first question from the survey questionnaire, which reads: The municipality where I work subsidizes bicycles, was answered with YES - 72 respondents or 72%, with PARTIALLY - 12 respondents or 12%, with NO - 16 respondents 16%.

Table no. 21 – Answers to question no. 21

The municipality where I work subsidizes bicycles  Answers				
Question No.	Yes	Partiall y	No	Total
	72	12	16	100
	72%	12%	16%	100%

The twenty-second question from the survey questionnaire, which reads: The municipality where I work subsidizes inverter air conditioners, was answered with YES - 72 respondents or 72%, with PARTIALLY - 12 respondents or 12%, with NO - 16 respondents 16%.

Table no. 22 – Answers to question no. 22

The municipality where I work subsidizes bicycles					
Answers	Answers				
Question No.	Yes Partiall No Total				
22		у			
	72	12	16	100	
	72%	12%	16%	100%	

The twenty-third question from the survey questionnaire, which reads: The municipality where I work subsidizes electric scooters, was answered with YES - 72 respondents or 72%, with PARTIALLY - 12 respondents or 12%, with NO - 16 respondents 16%.

Table no. 23 – Answers to question no. 23

The municipality where I work subsidizes electric scooters						
Answers						
Question No.	Yes Partiall No Total					
23		У				
	72	12	16	100		
	72%	12%	16%	100%		

The twenty-fourth question from the survey questionnaire, which reads: The municipality where I work encourages innovations from citizens for air purification, was answered with YES - 34 respondents or 34%, with PARTIALLY - 36 respondents or 36%, with NO - 30 respondents 30%.

Table no. 24 - Answers to question no. 24

The municipality where I work encourages innovations from citizens for air purification  Answers						
Question No.	Question No. Yes Partiall No Total					
24		У				
	34	36	30	100		
	34%	36%	30%	100%		

On the twenty-fifth question from the survey questionnaire, which reads: My municipality is working on finding solutions for cleaning the ambient air, YES - 34 respondents or 34%, with PARTIALLY - 36 respondents or 36%, with NO - 30 respondents 30%.

Table no. 25 – Answers to question no. 25

My municipality is working on finding solutions for cleaning the ambient air  Answers				
Question No. Yes Partiall No Total y				
	34	36	30	100
	34%	36%	30%	100%

The twenty-sixth question from the survey questionnaire, which reads: The municipality where I work takes care of water protection, was answered with YES - 38 respondents or 38%, with PARTIALLY - 34 respondents or 34%, with NO - 28 respondents 28%.

Table no. 26 – Answers to guestion no. 26

The municipality where I work takes care of water protection							
Answers							
Question No.	Yes	Yes Partiall No Total					
26		У					
	38	38	28	100			
	38%	38%	28%	100%			

The twenty-seventh question from the survey questionnaire, which reads: The municipality in which I work undertakes specific activities for purification of wastewater, was answered with YES - 38 respondents or 38%, with PARTIALLY - 34 respondents or 34%, with NO - 28 respondents.

Table no. 27 – Answers to question no. 27

The municipality in which I work undertakes specific activities for purification of wastewater  Answers						
Question No.						
27	27 y					
	38	38	28	100		
	38%	38%	28%	100%		

The twenty-eighth question from the survey questionnaire, which reads: The municipality conducts propaganda for water protection, was answered with YES - 40 respondents or 40%, with PARTIALLY - 32 respondents or 32%, with NO - 28 respondents 28%.

Table no. 28 - Answers to question no. 28

The municipality conducts propaganda for water protection	
Answers	

Question No.	Yes	Partiall y	No	Total
	40	32	28	100
	40%	32%	28%	100%

To the twenty-ninth question from the survey questionnaire, which reads: The municipality is involved in activities to raise citizens' awareness of the importance of water for a healthy life, 48 respondents or 48% responded with YES, with PARTIALLY 38 respondents or 38%, with NO – 14 respondents 14%.

Table no. 29 – Answers to question no. 29

The municipality is involved in activities to raise citizens' awareness of the importance of water for a healthy life  Answers					
Question No.	V				
	48	38	14	100	
	48%	38%	14%	100%	

The thirtieth question from the survey questionnaire, which reads: The municipality undertakes specific activities for solid waste management, was answered with YES - 52 respondents or 52%, with PARTIALLY - 23 respondents or 23%, with NO - 25 respondents 25%.

Table no. 30 – Answers to question no. 30

The municipality undertakes specific activities for solid waste management,  Answers					
Question No. Yes Partiall No Total y					
	52	23	25	100	
	52%	23%	25%	100%	

In order to confirm and prove the hypotheses and the claims made, a qualitative analysis of the research results was conducted. For this purpose, the received answers are grouped according to the indicators from which they were derived and are accordingly scored and calculated. Scoring and calculation is done in such a way that: each answer YES gets 3 points, each answer PARTIALLY gets 2 points and each answer NO gets 1 point. The maximum number of points that can result from a single question will be the amount of the number of respondents multiplied by 3, and the minimum will be the amount of the number of respondents multiplied by 1. The obtained points are divided by the number of respondents so that an arithmetic mean is obtained for the specific question. To prove the hypothesis, the values obtained from the corresponding independent variable are compared with the corresponding dependent variable. If the arithmetic mean is greater than 2.0 the variable is confirmed, and if the arithmetic mean is less than 2.0 it is rejected. The general hypothesis put forward in the research reads: If the municipality manages human resources, then it will be possible to protect the environment. To prove the General hypothesis, two separate hypotheses are set, and they are based on two individual hypotheses.

In order to better perceive the results of the two previous analyses, they are once again shown in comparison on chart number 1.

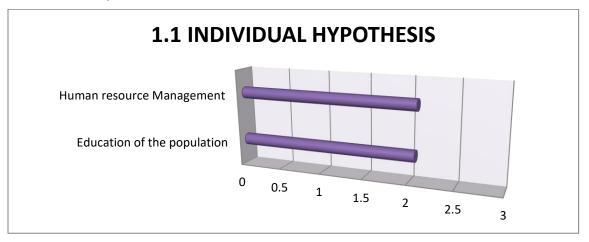


Chart No 1. Proof of Individual Hypothesis 1.1

Independent variable 1.1 is titled Human Resource Management, and it consists of the respondents' answers provided through questions number 1, 2, 3, 4, 5 and 6 of the survey questionnaire. Dependent Variable 1.1 of Individual Hypothesis 1.1 is titled Education of the population, and it consists of the respondents' answers provided through questions number 7, 8, 9, 10, 11, 12, and 13. After analyzing all the data from Independent Variable 1.1 and Dependent Variable 1.1 and comparing the obtained ideally equal results of 2.08 and 2.06 which are in the field above 2.0, indicated for a required result to prove the hypotheses, we conclude that confirm the claims of Individual Hypothesis 1.1, If the municipality manages the human resources, then it will be possible to protect the environment, from the aspect of educating the citizens about the importance of the environment.

In order to better understand the results of the two previous analyses, the data of the Independent Variable 1.2 and the Dependent Variable 1.2 of the Individual Hypothesis 1.2 are comparatively shown in chart number 2.

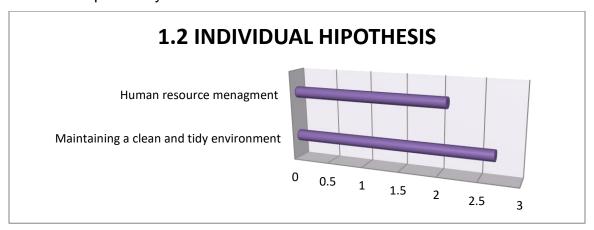


Chart No 2. Proof of Individual Hypothesis 1.2

Independent Variable 1.2 is already presented as Independent Variable 1.1 of Single Hypothesis 1.1 and has a value of 2.08. Dependent variable 1.2 is titled *Keeping the environment clean and tidy* and it consists of the respondents' answers provided through questions number 14, 15, 16, 17, 18 and 19. After analyzing all the data from the Independent Variable 1.2 and the Dependent Variable 1.2 and comparing the obtained results of 2.08 and 2.68 which are in the field above 2.0 indicated for a required result for the proof of the hypotheses, we conclude that the Individual Hypothesis 1.2, *If the municipality manages the human resources, then it will be possible to protect the environment, in terms of maintaining a clean and orderly environment,* it has been proved.

In order to better understand the results of the two previous analyses, the data of the Independent Variable 2.1 and the Dependent Variable 2.1 of the Individual Hypothesis 2.1 are comparatively shown in chart number 3.

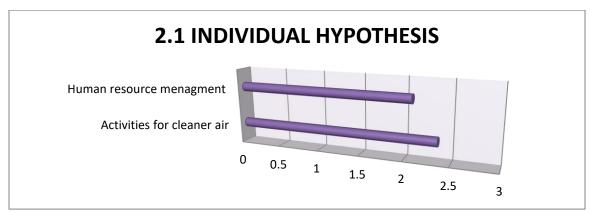


Chart No 3. Proof of Individual Hypothesis 2.1

Independent variable 2.1 of Individual Hypothesis 1.2 is titled Human Resource Management and has a value of 2.08. Dependent variable 2.1 is titled Activities for cleaner air and it consists of the respondents' answers provided through questions number 20, 21, 22, 23, 24 and 25. After analyzing the data obtained from these indicators, the arithmetic mean 2.36 was obtained. After analyzing all the data from the Independent Variable 2.1 and the Dependent Variable 2.1 and comparing the obtained results of 2.08 and 2.36 which are in the field above 2.0 indicated for a required result to prove the hypotheses, we conclude that Individual hypothesis 2.1 *If the municipality manages the human resources, then it will be possible to protect the environment, from the aspect of providing clean air for the citizens,* it has been proved.

In order to better understand the results of the two previous analyses, the data of the Independent Variable 2.2 and the Dependent Variable 2.2 of the Individual Hypothesis 2.2 are comparatively shown in chart number 4.

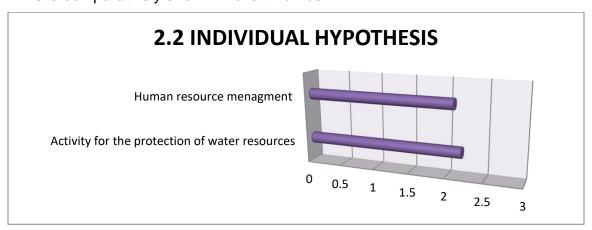


Chart No 4. Proof of Individual Hypothesis 2.2

Independent variable 2.2 of Individual Hypothesis 1.2 is titled Human Resource Management and has a value of 2.08. Dependent variable 2.2 is titled Activities to protect water resources. and it consists of the respondents' answers provided through questions numbers 26, 27, 28, 29 and 30 of the survey questionnaire. After analyzing the data obtained from these indicators, the arithmetic mean 2.19 was obtained. After analyzing all the data from Independent Variable 2.2 and Dependent Variable 2.2 and comparing the almost identical obtained results of 2.08 and 2.19 which are in the field above 2.0 indicated for a required result to prove the hypotheses, we conclude that Individual hypothesis 2.2 If the municipality manages human resources, then it will be possible to protect the environment, from the aspect of protecting water resources in the municipality, it has been proved.

After considering all the data and results obtained from the research, through which all four set of individual hypotheses from Individual Hypothesis 1 and Individual Hypothesis 2 were confirmed and proved, we can automatically conclude that the assertion of the General Hypothesis, which reads, *If the municipality manages human resources, then environmental protection will be enabled,* is fully confirmed and proven to be correct.

#### Conclusion

The paper conducts research in which it is revealed how much the municipality contributes by managing adequate human resources for educating the population about socially responsible behavior in the direction of environmental protection, whether it undertakes activities that help and encourage the population to behave socially responsible towards the environment, whether it contributes to cleaner air and protection of water resources, as well as how much it cares about a cleaner and neater living environment. From the obtained results it can be concluded that all the activities investigated with the set variables exist in the investigated municipalities.

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