

## QUESTIONNAIRE ABOUT GREEN ROOFS AND THEIR RETENTION QUALITIES FEATURES

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### Abstract

*Current worldwide agenda about climatic changes is very serious. Situation about changing climate, ecological issues like heavy rains, flooding areas, impervious surfaces are highly debated issues. There are many ongoing researches focusing on these problems. The aim of this article is showing the results of the questionnaire focusing its questions on climatic changes, ecology and microubanism in bigger detail and problematic of green roofs, their retention and some other qualities, ecological and economical features. The questionnaire is a part of ongoing research and the results will be used in the dissertation.*

**Key words:** changing climate, ecology, nature in city, green roof qualities.

### INTRODUCTION

A learner is by nature a questioner. If there is a drive in an individual to increase knowledge, skills or understanding it is driven by doubt, curiosity, wonderment, incomprehension, puzzlement, uncertainty, recognition of a need, or curiosity. This drive is then focused through questions that the learner formulates and actively seeks to find answers to. They may be simple questions that seek clear facts, or complex questions that probe deep into concepts, beliefs and understandings.

The question may provide an answer that solves the learning need or may lead to further questions as knowledge and understanding grows. It is obvious though, that however simple or complex an issue is, a good clear relevant question will be of far greater use to the learner than a question that is vague, poorly defined or irrelevant (Bond, 2011).

### MATERIALS AND METHODS

Questionnaires provide a relatively cheap, quick and efficient way of obtaining large amounts of information from a large sample of people. Data can be collected relatively quickly because the researcher would not need to be present when the questionnaires were completed. This is useful for large populations

when interviews would be impractical (McLeod, 2014).

The dissertation work Conception of green roofs in sustainability of water retention in Slovakia is focusing on the topic of green roofs and their retention qualities.

The questionnaire will be a part of the dissertation. Asked questions may provide answers that should be helpful to prove or disprove hypotheses asked in the questions.

Gender:

- male  
 female

Age:

- 21-30  
 31-40  
 41-50  
 >61

Education:

- secondary education  
 higher education (1<sup>st</sup>., 2<sup>nd</sup>., 3<sup>rd</sup>. degree)

- natural sciences  
 technical sciences  
 medical sciences  
 agricultural sciences  
 social sciences  
 human sciences

Country where you currently live/work/study in?

Where do you live in?

- family house  
 block of flats  
 other (specify) ...

1 Do you consider the question of the climate change as current issue?

- yes  
 partially yes  
 don't know  
 partially no  
 no

2 Do you think human migration (f. e. in North Africa) is related to the climate change?

- yes  
 partially yes  
 don't know  
 partially no  
 no

3 Are agreements like the Kyoto protocol (Framework convention on climate change) necessary?

- yes  
 partially yes  
 don't know  
 partially no  
 no

4 Are the questions of ecology important for you?

- yes  
 partially  
 no

5 Would you like to be informed about possibilities how to protect the environment?

- yes  
 don't care  
 no

6 Is the lack of green areas in town affecting you?

- yes  
 partially yes  
 don't know  
 partially no  
 no

7 Are you familiar with building systems like: „Nature-Based Solutions“, „Re-Naturing Cities“?

- yes  
 maybe yes, but I am not familiar with these terms  
 no

8 Do you think hard surfaces cause change in a microclimate in the local areas?

- yes  
 partially yes  
 don't know  
 partially no  
 no

9 Do you think building green roofs may affect change in a microclimate in the local areas?

- yes  
 partially yes  
 don't know  
 partially no  
 no

10 Is the legislation of green roofs secured in the country you currently live/work/study in?

- yes  
 don't know  
 no

11 Do you think building green roofs on new buildings and reconstructions should be mandatory?

- yes  
 don't know  
 no

12 Is there enough information about the green roofs in the country you live/work/study in?

- yes  
 don't know  
 no

13 Do you have any objections about the green roofs?

- yes (specify)  
 no

14 Would you like to have a green roof on a building you currently live/work/study in?

- yes  
 don't care

no (specify)

15 What would be your reason to build a green roof?

- saving money  
technical specifications  
ecology and sustainability  
no reason  
something else (specify) .

16 Which name of the roof is more common?

- green roof  
vegetative roof  
don't know

17 Do you know that green roof has retention features (ability to keep the water)?

- yes  
no

18 Can you imagine yourself using retained water, after filtration, for f. e. watering the garden, cleaning the car, washing clothes?

- yes  
no

19 If you built a green roof, in how many years would you expect the rate of return on the money?

- 1-5 years  
6-10 years  
11-15 years  
more than 15 years  
I am not interested in investing in building a green roof

20 Should owners of green roofs have financial benefits of sewerage charge?

- yes  
don't know  
no

Was this questionnaire educational?

- yes  
partially  
no

## RESULTS AND DISCUSSIONS

Basic information about the respondents:  
These questions are to provide basic information about the respondents, their

gender, age, education. Last two questions focus on where the respondent live. These questions will be the first criteria to evaluate the answers. So far, the questionnaire is answered by 55% men and 45% women. 42% in the age between 21-30 years, 29% in the age between 31-40 years, 96% finished their higher education, 77% are educated in technical sciences. 51% lives in family house, 58% in block of flats.

### 1. Hypothesis: Changes in climate

These questions (1-3) are to provide basic information about the respondent's opinion about climate changes. Questions ask about the topicality of issues such as climate change, human migration and Kyoto protocol. These questions should prove/disprove the hypothesis of climate change, if it is happening or not. 67% consider the question of climate change as a current issue, only 15% think the human migration is related to the climate change and 56% think the agreements like the Kyoto protocol are necessary.

### 2. Hypothesis: Ecological issues

These questions (4-5) focus on the topic of ecology and its importance to the respondents. These questions are directly asking the respondents their opinion, there is no extra information needed to answer these questions because they are very personal. The aim of these questions is to have information if people are truly interested in these topics, or if it is only worldwide issue known thanks to few people in higher positions / activists. These questions should prove/disprove the hypothesis of ecological issue, if it is important nowadays or not. Ecology is important to 86% and 89% would like to be informed about the possibilities how to protect the environment.

### 3. Hypothesis: Problematics of microubanism

These questions (6-9) are to provide basic information about the respondent's opinion about microubanism. Question about lack of green areas is personal; questions about affecting microclimate and the question about building systems need some background about the topic of microclimate and microubanism. There are always 5 answers so the respondent can truly choose what he thinks about the topic

and answer honestly. The aim of these questions is to prove the fact that, if people see problem in microubanism, they may see problem also in bigger scale. These questions should prove/disprove the hypothesis of microubanism which is related to the previous hypothesis of ecological issues in smaller scale. 55% is affected by the lack of green areas, 37% is partially affected. 46% know building solutions based on nature, 44% think they know it. 48% think hard surfaces cause changes in microclimate, 32% partially agree. 48% think green roofs may change that, 42% partially agree.

#### 4. Hypothesis: Legislation

These questions (10-11) are to provide information about legislation of green roofs where the respondents live. Second question is to make the respondent think and express his/her opinion. These questions should prove/disprove the hypothesis of legislation, its problems and topicality. Only 15% agree that the legislation in their country is secured, 60% don't know.

#### 5. Hypothesis: Green roofs

These questions (12-16) are to provide information about green roofs. Almost all yes/no questions end with the last question, where an opinion of the respondent is very important.

These questions allow people to express what they think in their own words. These questions should prove/disprove the hypothesis of green roofs, its necessity, topicality, importance in terms of all previous four hypothesis- change in climate, ecology, microubanism and legislation. 40% think building the green roofs should be mandatory, 32% don't know, 29% disagree. 53% say there is not enough information about this in their country.

76% have no objections about the green roofs. 79% would like to have a green roof on the building they live /study/work in. 73% agrees that building a green roof's main reason is sustainability and ecology.

77% agree that more common name of this roof is green, not vegetative.

#### 6. Hypothesis: Retention features

These questions (17-18) focus on the topic of retention qualities of green roofs. Second question should provide basic information about respondent's opinion about using water from green roof. These questions should prove/disprove the hypothesis of retention features of green roofs, related to the previous hypothesis but more focused on its special features. 84% know about the retention features of these roofs. 86% can imagine using this water after the recycling.

#### 7. Hypothesis: Economical situation

These questions (19-20) focus on the topic of economy. These questions should prove/disprove the hypothesis of economy related on the issue of green roofs.

#### 8. Hypothesis: Education of people

Last question of the questionnaire is about the educational character of the asked questions. Aim of this question is to obtain the knowledge, if the questionnaire informed the respondents, if they learnt something new, if it was maybe helpful for them. According to this question, there might be an idea that people would like to be informed about current topics like ecology, microclimate etc. These questions should prove/disprove the hypothesis of the importance of education people nowadays. 39% expect the rate of return after building a green roof in max 10 years, 23% in max 20 years, 36% don't know. 69% think that owners of these roofs should be financially benefited.

## CONCLUSIONS

The aim of this questionnaire in the dissertation is to obtain as many opinions as possible. It is very well known and very useful tool how to get information about some problematic. Many researches begin with questionnaires, because they provide basic information about the topic. In 20 questions, for the dissertation Conception of green roofs in sustainability of water retention in Slovakia, many topics can be debated. The main idea of the questionnaire is to get information with the intention to make a conclusion about the topic of retention qualities of green roofs.

The idea is to prove or disprove this hypothesis: 1. change in climate, 2. ecology, 3. microubanism.

These hypothesis are related to the hypothesis of: 4. green roofs, their 5. legislation, 6. retention features, 7. economy and current 8. education. The questionnaire has been online for 3 weeks. So far, 154 respondents answered all the questions. When 200 respondents will answer, the questionnaire will be evaluated following the criteria of the respondents and following each hypothesis explained above. Statistic method will be used to evaluate the questionnaires.

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