CEED

Crna Gora
Ministarstvo ekonomije

gtz

SURVEY ON PUBLIC OPINION ON THE LEVEL OF AWARENESS OF ENERGY EFFICIENCY

NOVEMBER, 2010

CONTENT:

1. INTRODUCTION AND RATIONAL FOR THE STUDY

Ministry for Economic Development with support of GTZ - and Federal Ministry for Cooperation and Development of the Republic of Germany, has designed the project 'The Year of Energy Efficiency'. Within the scope of the project, 17 measures have been prepared, which have for their focus different target groups: from households to economy and public sectors.

Before the beginning of the project, a public opinion poll was conducted (October 2008), regarding the level of awareness about energy efficiency. The poll is, and has been, the basis for planning future activities. In June 2009, a mid-survey was carried out to monitor the situation, and in November 2009 the final survey was carried out to analyze the end results of the project. During the project an intensive public campaign was launched. This was aimed at informing the general public and also to raise awareness about the efficient use of all forms of energy including TV advertising, radio spots and series about energy efficiency. A documentary on energy efficiency was put together and a TV show "Smart Energy" was produced.

In order to continue with informing and educating the public on the importance of and the need for rational consumption, the Ministry for Economic Development with support of GTZ proceeds with the implementation of similar surveys.

2. OBJECTIVES AND METHODOLOGY

The awareness of household representatives of energy efficiency is based on conducted survey, which for the needs of German Organization for Technical Cooperation (GTZ) and the Ministry of Economy of Montenegro was carried out by selected company CEED Consulting.

In order to obtain more detailed insight and perception of the attitudes and opinions of citizens about the given topics, a quantitative survey (face-to-face), which included 452 household representatives living in their own apartments/houses, was conducted. As starting basis for sample creation the MONSTAT's data on the number of adult citizens in Montenegro were used and based on it a representative sample was created[1].

The survey was conducted in Berane, Bijelo Polje and Pljevlja (northern region), Nikšić and Podgorica (central region) and Bar, Budva, Ulcinj and Herceg Novi (southern region) on the sample of 452[2] citizens. Table 1 contains the overview of the number of respondents by municipalities.

Table 1. Structure of respondents by municipalities

MUNICIPALITIES	NUMBER OF INTERVIEWS	% SHARE IN SAMPLE
Podgorica	90	19.9
Nikšić	60	13.3
CENTRAL REGION	**150**	**33.2**
Bijelo Polje	60	13.3

[1] Representativeness of the sample implies that selected units of observed group, or population have all characteristics of total population

[2]The Proposal anticipated the interviewing 450 respondents, but the survey included higher number of respondents than it was planned

Berane	45	10.0
Pljevlja	45	10.0
NORTHERN REGION	**150**	**33.3**
Ulcinj	40	8.8
Bar	37	8.2
Budva	40	8.8
Herceg Novi	35	7,7
SOUTHERN REGION	**152**	**33.5**
TOTAL:	**452**	**100.0**

Data collection on the field was conducted during September and October 2010 by direct interviewing method. CEED Consulting hired 18 polltakers for the field work, who attended one-day training on questionnaire content, the aim of the research as well as on the deadlines for data collection.

The questionnaire containing questions of both closed and open type was created. The respondents included in the research were guaranteed anonymity, which contributed to obtaining as honest and accurate answers as possible.

Data entry was done in Microsoft Excel, while data processing with necessary logical controls was performed in SPSS software (statistical package for social sciences used for data processing and analysis).

In accordance with the goals of the research, CEED Consulting analyst team carried out data analysis in and in cooperation with target groups the conclusions were prepared. Taking into account the way the sample has been created, its representativeness as well as the prepared methodology, believes that the presented results may be treated as valid indicators of the level of citizens' awareness of energy efficiency.

3. ANALYSIS OF THE RESULTS

In order to get better insight into public informing and strengthening awareness of the importance energy efficiency, quantitative research have been carried out, which included several parts:

- Demographic characteristics of respondents,
- Energy consumption in household,
- Energy efficiency – definition and promoting activities and
- Energy efficiency measures.

3.1 Demographic characteristics of respondents

The survey was carried out in 9 Montenegrin municipalities on the ample of 452 citizens. Gender structure of respondents: 50.2% of men and 49.8% of women. In majority of cases respondents were between 30 and 44 (38.5%) and between 45 and 59 (34.7%).

In 70.5% of cases respondents had secondary education. Most often, respondents lived in houses (69.3%), while in 39.3% of cases their incomes ranged between 351€ do 1.000€.

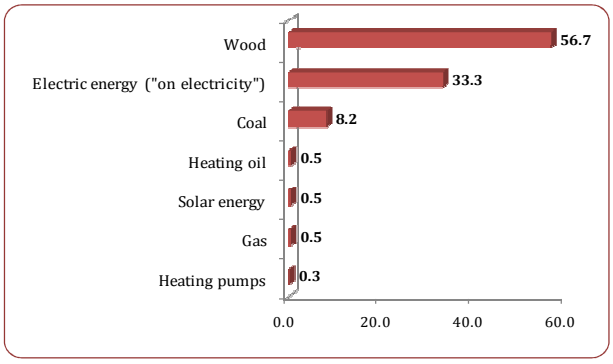
3.2 Energy consumption in households

Three quarters (74.6%) of respondents most often used electricity as energy-generating product, while considerably lower percentage (23.0%) opted for wood.

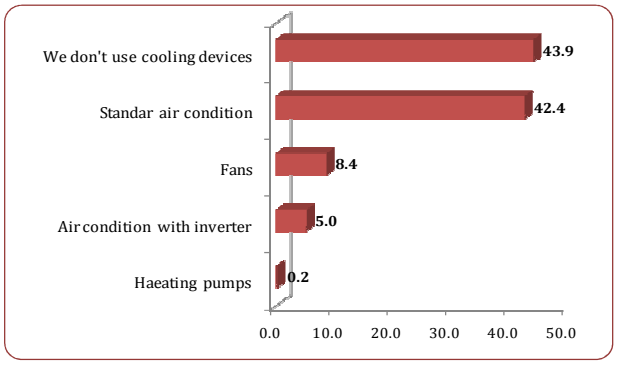
Which energy-generating product would they opt for depends on the dwelling conditions and the region the respondents live in. Thus, the wood and electricity are the most often used for heating (56.7% and 33.3% respectively, Graph 1). A more detailed insight shows that the respondents living in the northern and central region mostly opt for wood, while electricity is usually chosen by citizens from the south.

Nearly the same percentage of household representatives said they did not use the cooling devices, or that they use standard air-conditions (43.9% and 42.4% respectively – Graph 2). Households from the central and southern region mostly used standard air-conditions, which is conditioned by specific climate in this region.

Graph 1. Energy-generating products used during the winter:

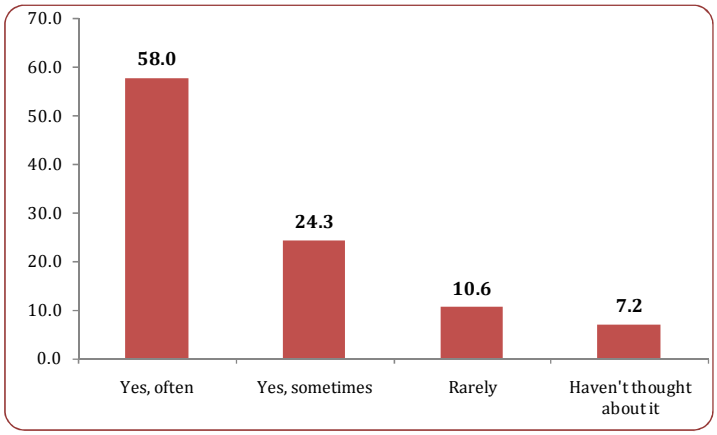


Graph 2. Cooling devices used during the summer:



Respondents in 58.0% of cases often thought about ways to decrease their total electricity bill in the household – Graph 3. For that reason, and for the purpose of cutting off electricity consumption in households, 42.7% of interviewed were implementing certain measures: use of energy saving light bulbs, turning on appliances according to need, use of cheap tariffs as well as the use of gas.

Graph 3. Have you thought about decreasing electricity bill in your household?

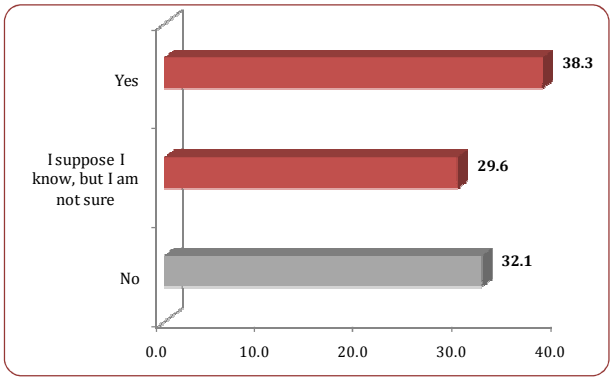


Women more often thought about ways to decrease electricity bill, which is natural since they were „recognized“as the ones who take care of the households. In addition, women also more often implemented some of energy saving measures in comparison to men.

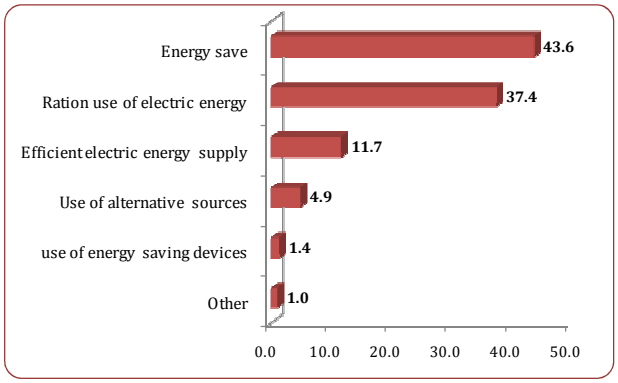
3.3 Energy efficiency – definition and promotional activities

High percentage of interviewed, 67.9% (Graph 4) knew or assumed they knew what was implied under term energy efficiency. These respondents defined energy efficiency as electricity saving and rational consumption (43.6% and 37.4% respectively, Graph 5).

Graph 4. Are you aware of the term energy efficiency?



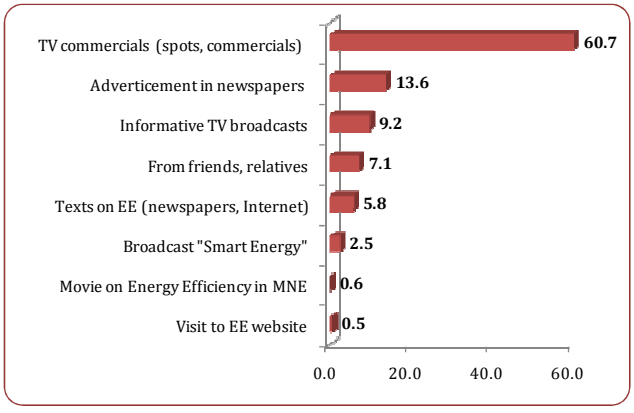
Graph 5. How would you define the energy efficiency term?



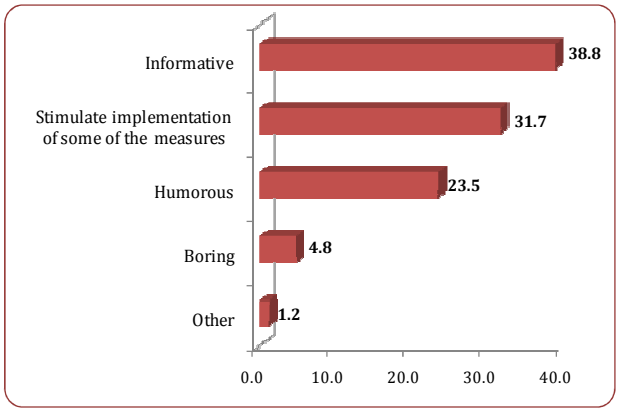
Three fifths of respondents (57.1%) noticed in the media information on rational energy consumption by increasing energy efficiency. The most common way of informing was the commercials broadcasted on TV (Graph 6). Both women and men in equal extent noticed the information in the media.

As the respondents in 60.6% of cases noticed promotional TV features, they were asked what kind of impression they left on them. According to them, the broadcasted TV features were informative, stimulating and funny (Graph 7). These ways of informing were equally mentioned by both men and women.

Graph 6. Ways of informing on energy efficiency?



Graph 7. Promotional TV features broadcasted on TV were:



The respondents showed low awareness upon defining terms such as energy efficiency bus, energy audit of the building and passive houses. Only 10.8% of respondents knew to define energy bus as a bus containing the equipment for measuring energy efficiency, electric-powered and environmentally friendly bus.

Respondents in 21.0% of cases knew what was implied by energy audit of the buildings. It was about energy consumption review in buildings, inspection of installation and meter functioning.

Almost every fifth respondent (19.5%) knew to define what is implied under term passive house-a house on which the energy is spent rationally, or a house which uses alternative energy sources.

3.4 Energy efficiency measures

In order to perceive the current public awareness of some energy efficiency measures, we asked the citizens if they and to what extent were familiar with certain energy efficiency measures. The analysis showed the least familiarity with thermostat valves and condensate boilers, as well as solar collectors and air condition with inverter (Table 2).

Women in higher percentage than men have not heard of condensate boilers and thermostat valves as well as solar collectors and air conditions with inverter.

Table 2. Which among the following energy efficiency measures you have not heard of?

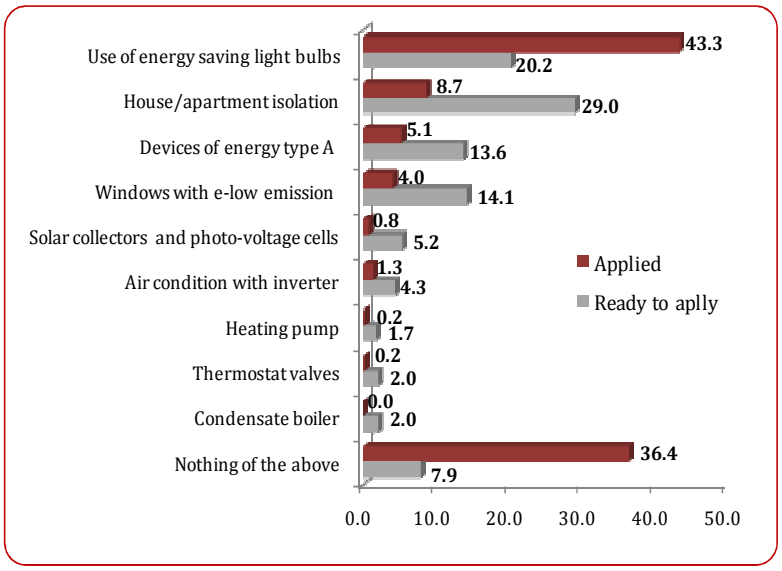
Measures EE	%
Thermostat valve	21.8
Condensate boiler	21.3
Solar collector and photo-voltage cells	13.1
Air condition with inverter	12.9
Heating pump	11.8
Window with e-low emission	7.7
Devices of energy type A	7.6
Nothing of the above	2.4
Use of saving light bulbs	0.9
House/apartment isolation	0.5

Respondents were asked to what extent they implemented energy efficiency measures in their households, and which of the measures they are ready to implement in the following period. Just above two fifths of respondents (43.3%, Graph 8) used energy saving light bulbs in their household, while considerably lower percentage opted for house/apartment insulation (8.7%, Graph 8). More detailed analysis shows that interviewed citizens in the northern region in significantly lower percentage applied mentioned measures in comparison to those from central and southern region. Men, in larger number of cases would implement mentioned measures.

Regarding the future period, respondents are ready to implement facility insulation and to use energy saving light bulbs in larger extent (29.0% and 20.1% respectively, Graph 8). In addition to this, respondents expressed willingness to install windows with low-e glass and devices of energy type A (14.1%, 13.6% respectively, Graph 8). Respondents from the northern region showed willingness for house/apartments insulation, equally men and women with income ranging from 351 to 1.000€.

Graph 8 shows that 7.9% respondents did not want to implement any of the mentioned measures in the future period.

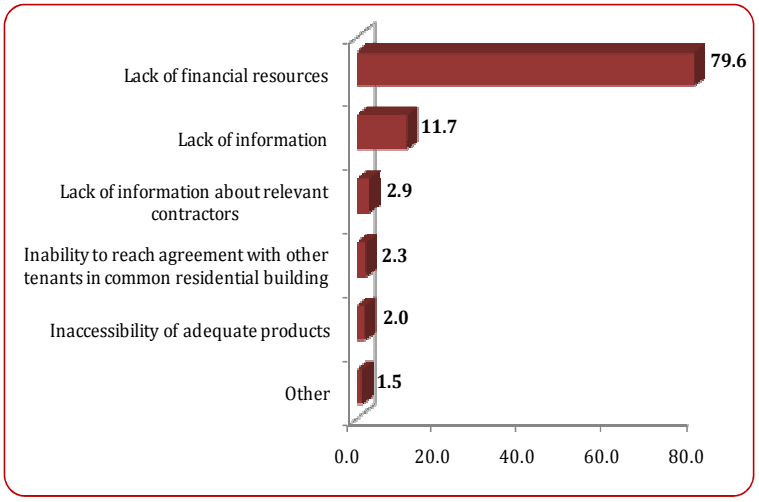
Graph 8. Energy efficiency measures you already implemented and those you are willing to implement in the future period?



Interviewed household representatives were asked for reasons for which they were not planning to implement some of energy efficiency measures. In majority of cases, the main reason was the lack of funds (79.6%, Graph 9), while every tenth respondents mentioned the lack of information as well.

More detailed insight shows that the lack of funds was mostly mentioned by men respondents from the north, as well as by those living in the house.

Graph 9. Reasons for which you are not planning to implement some of energy efficiency measures?



4. PROCESS OF CONDUCTING RESEARCH

With the purpose of implementing Public Opinion Survey on Awareness of Energy Efficiency, representatives of GTZ and research agency CEED Consulting held the meeting where they defined activities to be carried out in the near future.

Since the survey has been implemented year after year, the existing research methodology and working plan have been updated describing the research methods to be applied, defined goals and target groups, research techniques (questionnaire) as well as the data processing model and analysis of the obtained results. Adoption of the proposed methodology was followed by the questionnaire update.

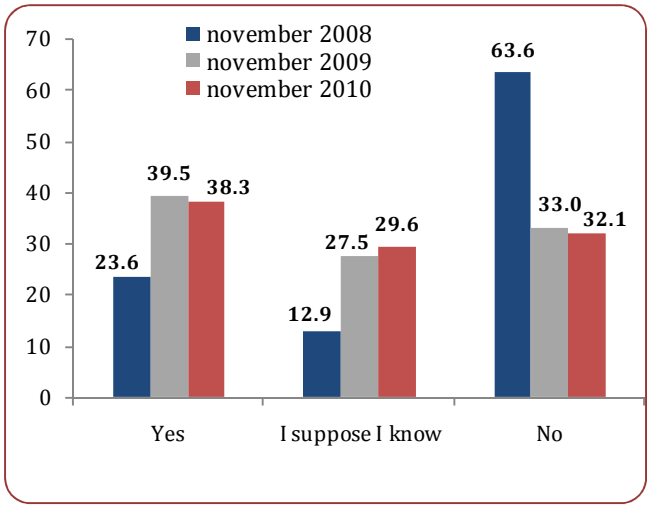
In the process of the survey implementation, the representatives of the households have cordially met with our poll takers, and helped them in the implementation of the poll taking. In addition, the data have been collected in the proposed time period.

For field work CEED Consulting engaged 18 interviewers who attended one-day training on the content of the questionnaire, aims of the research, as well as the deadlines for data collection.

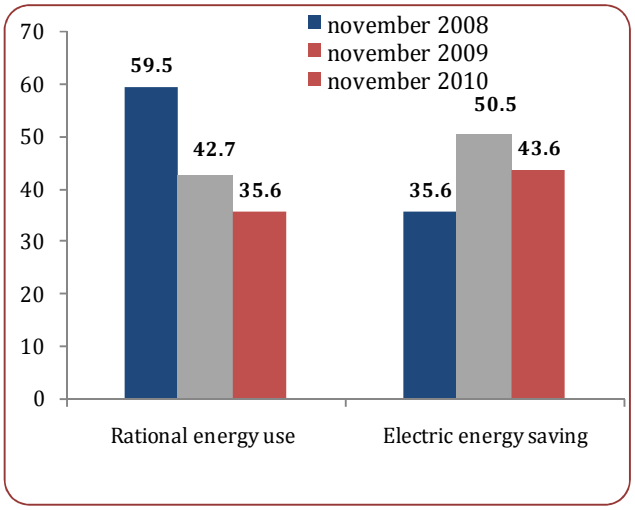
Given data were entered in Excel electronic base, after which analysis of the results started.

5. RESEARCH RESULTS COMPARISON (2008., 2009. and 2010.)[3]

Are you aware of the energy efficiency term?



How would you define energy efficiency?

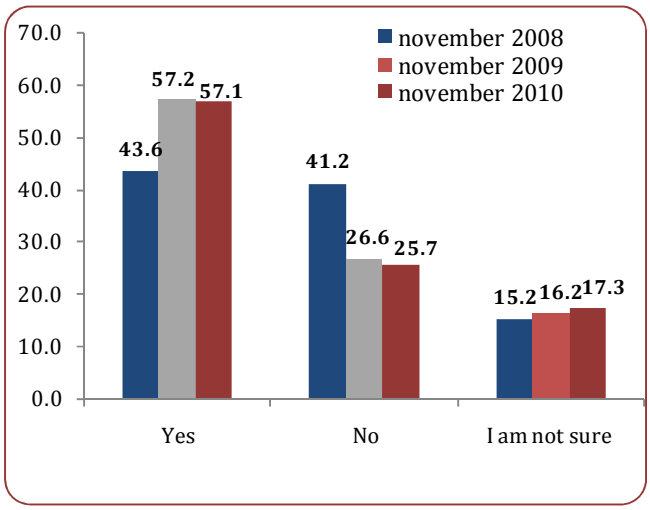


✓ Higher number if citizens who knew or assume they knew what is implied under energy efficiency

✓ Higher number of those who define energy efficiency as energy saving

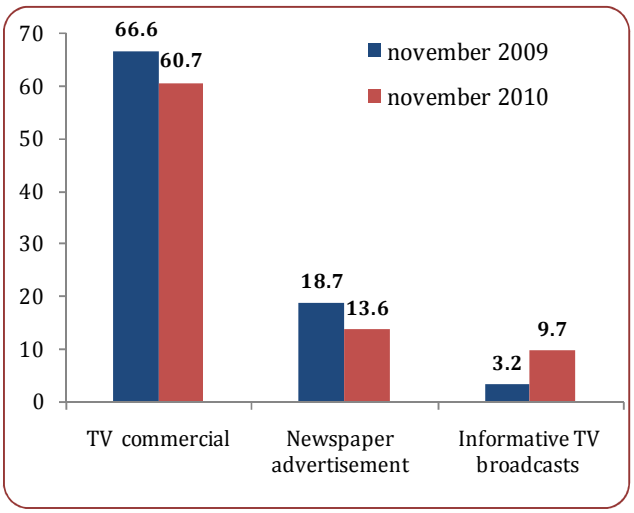
[3] The beginning of the project 'The Year of Energy Efficiency' (2008) the public awareness of energy efficiency and applicable measures was on lower level, while during the project implementation (2009) it has increased. What is characteristic for 2010 is that respondents showed the same or lower level of awareness than in 2009, which could be caused by decreased intensity of the public campaign after one that was underway during the Year of Energy Efficiency.

Have you noticed information on EE in the media?



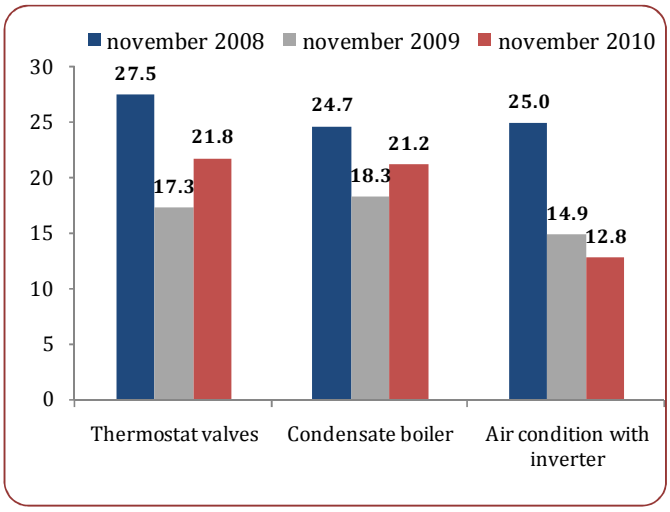
✓ Increased number of respondents who noticed information on EE in the media.

How did you hear of energy efficiency?[4]



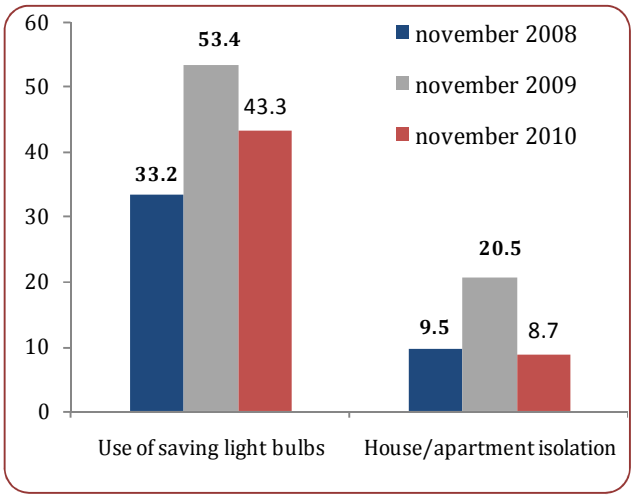
✓ Interviewed people most often get informed via TV - spots and commercials, as well as daily newspaper ads.

Among the following energy efficiency measures, is there any that you have not heard of so far?



✓ Reduced number of those who have not heard of thermostat valves and condensate boilers

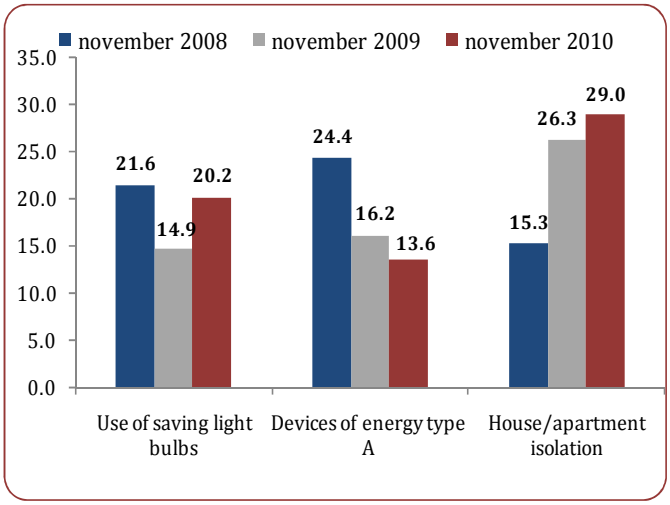
Did you *implement* any of energy efficiency measures during the last year?



✓ The number of respondents who used energy saving light bulbs in their household grows. Similarly, reduced number of those who in 2009 opted for house/apartment insulation

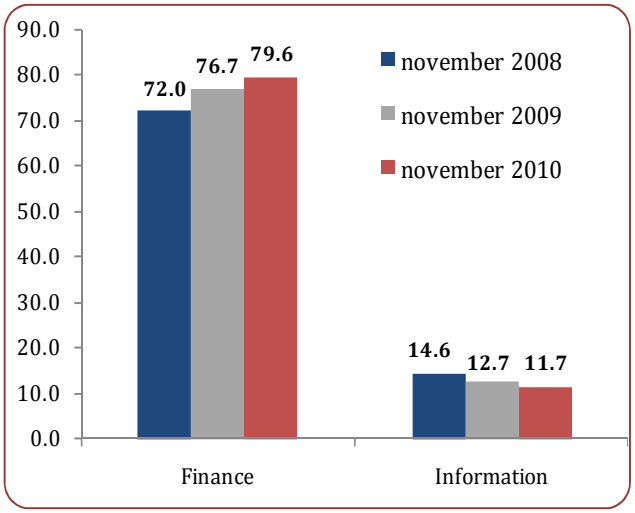
[4] As promotional activities started in 2008 within the project the Year of Energy Efficiency, the respondents could not be asked how they have heard of the project. For this reason, the graph displays results for 2009 and 2010.

Which of the following energy efficiency measures you *would be willing to implement* in your household?



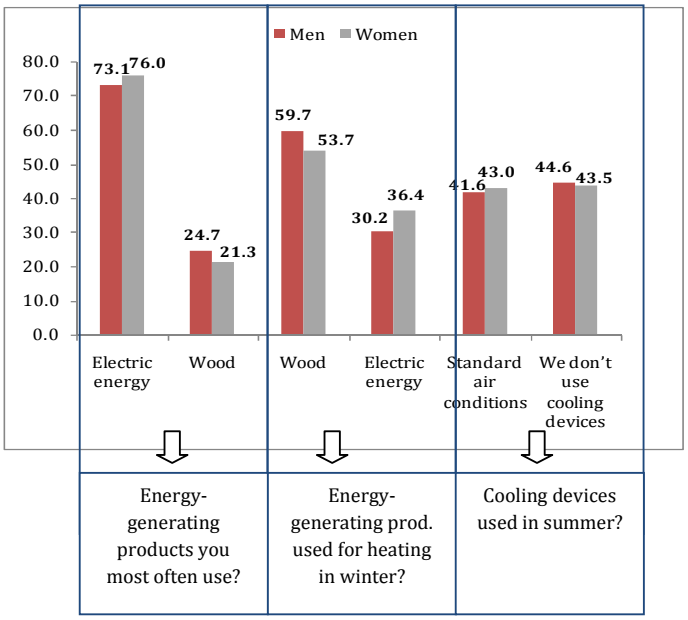
✓ Citizens show willingness to implement house/apartment insulation in the following period. Similarly, they show willingness to apply energy saving light bulbs

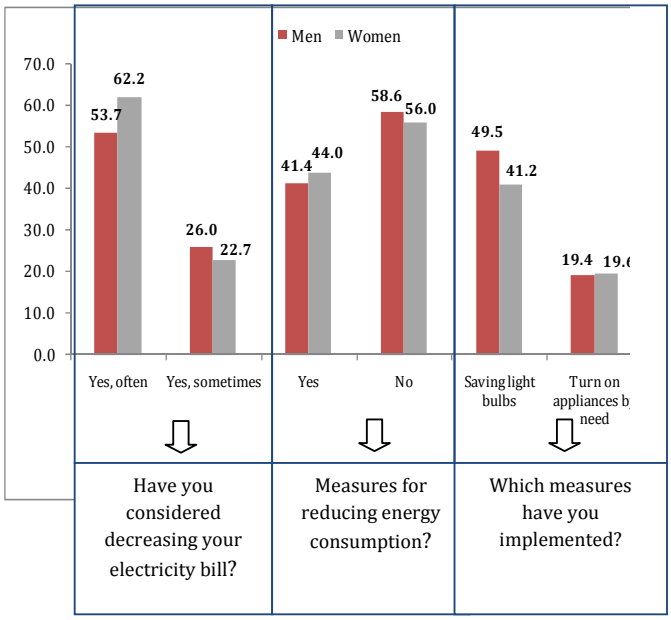
Reasons for not implementing some of mentioned measures?

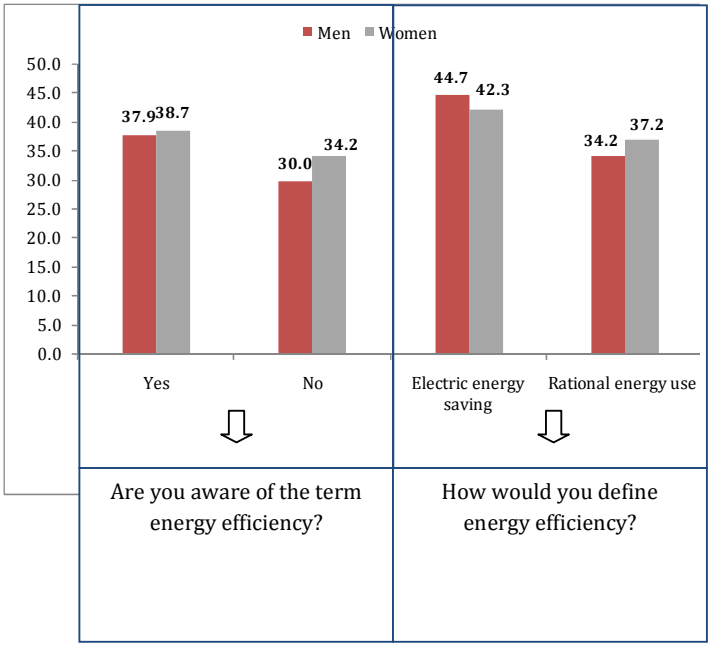


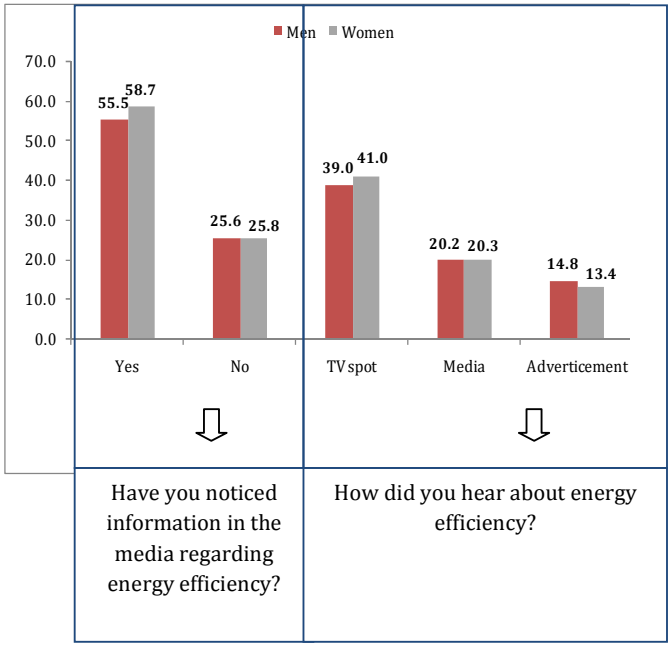
✓ The lack of funds is recognized as the most important reason for not implementing some of energy efficiency measures

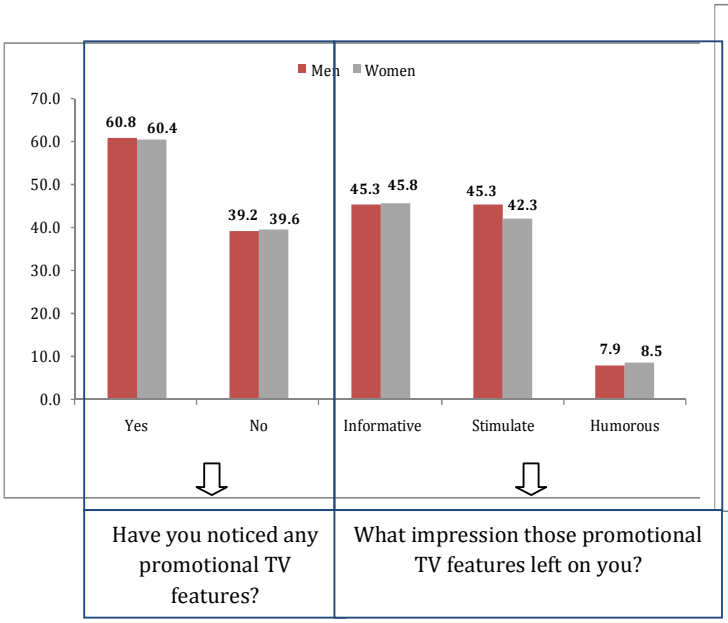
6. OBTAINED RESEARCH RESULTS BY GEDNER (results for 2010)





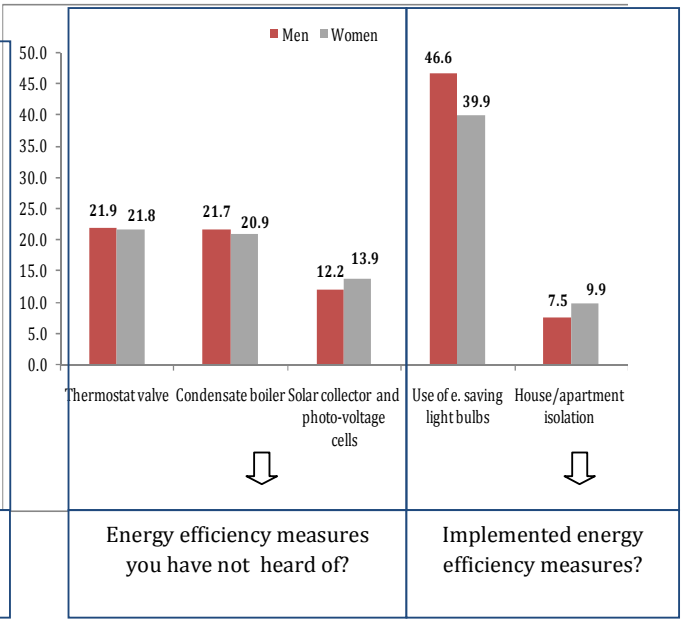






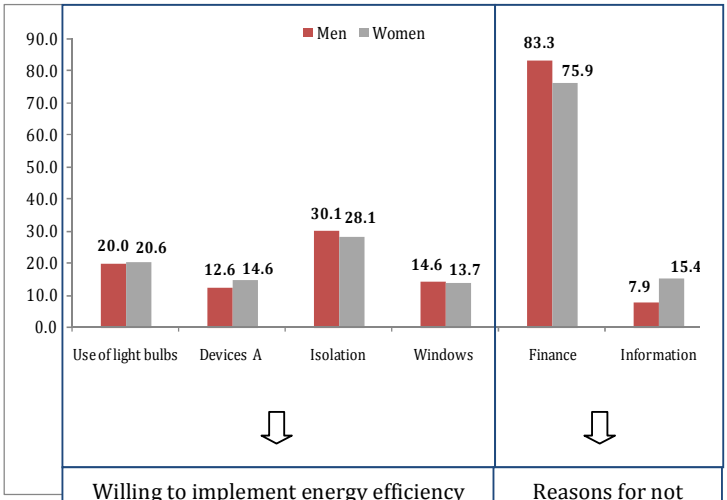
Have you noticed any promotional TV features?

What impression those promotional TV features left on you?



Energy efficiency measures you have not heard of?

Implemented energy efficiency measures?



Willing to implement energy efficiency measures?

Reasons for not implementing energy efficiency measures?

7. CONCLUSIONS

The Public Opinion Survey on Energy Efficiency was conducted for the purpose of getting insight into the level of respondents' awareness of energy efficiency and their informing on the importance of rational energy consumption in the household.

Based on obtained survey results, the following conclusions were defined:

- The survey was conducted in 9 Montenegrin municipalities on the sample of 452 respondents. Gender structure: 50.2% men and 49.8% women.

- Three quarters of respondents use electricity as energy-generating product in their households. For heating during the winter they most often use **wood** and electricity, while for cooling during the summer, they use **standard air conditioners.**
  - ✓ Which type of heating and cooling a household would use depends on the location of residence (apartment/house, as well as the region where they live) and financial capacities.

- Respondents in 58.0% of cases **often thought about ways to decrease their total electricity bill**. To achieve this they undertook the following measures: use of energy saving light bulbs, turning on appliance according to the need, cheap tariff and the use of gas.
  - ✓ The citizens' awareness of the importance of energy efficiency and rational energy use is increased and as a result, certain measures have been implemented.

- Interviewed household representatives show good familiarity with the energy efficiency term. Two thirds of them **(68%) knew or assume they knew** what is implied under this term.
  - ✓ It is necessary to further educate citizens in the following period and point them to the importance of measures which could achieve energy efficiency. Therefore, it is necessary to conduct the informative campaign in order to encourage citizens to consider other ways of energy use.

- Under energy efficiency respondents implied **energy saving** and **rational consumption.**
  - ✓ Intensify activities that will make information available to citizens in what way, by applying certain energy efficiency measures they can reduce their living costs and improve their living quality.

- For energy efficiency respondents most often heard due to broadcasted **TV features, media commercials and newspaper ads.**
  - ✓ It is necessary to regularly inform the public via different media channels. Special attention should be paid to TV features and informative broadcasts as well as ads in daily newspapers.

- In 60% of cases respondents noticed **promotional TV features** on energy efficiency, which they assessed as **informative, stimulating and funny.**
  - ✓ The existing knowledge needs to be upgraded and aimed towards acquiring additional information that would be a basis for future decision making to be more energy efficient.

- Respondents showed poor familiarity with terms such as **energy bus, energy audit of buildings and passive house.**
  - ✓ In the following period, place information that point to the characteristics and importance of each of these terms.

- In their households citizens most often **use energy saving light bulbs** or they opt for **house/apartment insulation**.

- ✓ Introduce public with other energy efficiency measures and point to the benefits of each of them.
- ✓ Energy saving light bulbs is recognized as energy efficiency measure that is to large extent used in households. Reasons for this are financial expenses that implementation of this measure requires.

- Even in the following period respondents are willing to conduct **house/apartment insulation** and to use **energy saving light bulbs** to greater extent. In lower percentage, respondents opted for installation of windows with low-e glass and devices of energy type A.
  - ✓ Through informative-educational campaign introduce citizens with other energy efficiency measures; point them how they can be informed and what actions they need to take in order to be more energy efficient in the future.

- As reasons for not implementing some of energy efficiency measures, respondents most often stated the **lack of funds.**
  - ✓ Introduce citizens with terms and conditions of purchase of some of the energy efficiency measures, since they generally believe that applying some of these measures requires significant financial expenses.

Result comparison (2008, 2009 and 2010):

- Citizens showed **increased awareness** of energy efficiency and most often defined this term as **energy saving**.
  Percentage of citizens familiar with the energy efficiency term in 2009 increased in 15.9% compared to 2008 (from 23.6% to 39.5%), but this percentage recorded a drop in 2010 in comparison to 2009 in 1.2% (from 29.5% to 38.3%), but it is still significantly higher (in 14.7%) in 2010 when compared to 2008 (from 23.6% to 28.3%).

- Increased number of respondents, who, thanks to the **media, noticed information on rational energy consumption** by increasing energy efficiency- they get informed through broadcasted TV commercials.
  Percentage of citizens who define EE as energy saving increased in 14.9% in 2009 in comparison to 2008 (from 35.6% to 50.5%), but this percentage slightly dropped (in 6.9%) in 2010 in comparison to 2009 (from 50.5% to 43.6%), but it is still significantly higher than in 2008, in 8.0% (from 35.6% to 43.6%).

- Conducting promotional activities influence the strengthening awareness of the importance of implementing energy efficiency measures.
  Percentage of citizens who notice information on EE in the media in 2009 increased in 13.6% in comparison to 2008 (from 43.6% to 57.2%), while this percentage remained the same in 2010 (from 57.2% to 57.15), but it is still significantly higher (in 13.5%) than in 2008 (from 43.6% to 57.1%).

- Respondents got informed about EE through broadcasted commercials on TV. Implementation of promotional activities influenced strengthening public awareness of the importance of the implementation of energy efficiency measures.

Percentage of citizens who informed about EE via TV in 2010 decreased in 5.9% in comparison to 2009 (from 66.6% to 60.7%).

- **Reduced number** of interviewed people who **have not heard of** some energy efficiency measures – **thermostat valves and condensate boiler**.
  Percentage of citizens who have not heard of some of energy efficiency measures is reduced in 10.2% in 2009 in comparison to 2008 (thermostat valves – from 27.5% to 17.3%) and 6.4% (condensate boiler - from 24.7% to 18.3%), but this percentage increased in 2010 by 4.5% when compared to 2009 (thermostat valves – from 17.3% to 21.8%) and by 2.9% (condensate boiler – from 18.3% to 21.2%), while it is decreased in comparison to 2008 – 5.7% (thermostat valves – from 27.5% to 21.8%) and 3.5% (condensate boiler – from 24.7% to 21.2%).

- **Number of citizens who use energy saving light bulbs** in their households **increased.**
  Percentage of citizens who applied energy saving light bulbs in 2009 in comparison to 2008 increased in 20.2% (from 33.2 to 53.4%), while this percentage decreased in 10.1% in 2010 in comparison to 2009 (from 53.4% to 43.3%), but is significantly higher than in 2008 (in 10.1% - from 33.2% to 43.3%).

- Respondents show **willingness to conduct house/apartment insulation** in the following period.
  Percentage of citizens who are willing to conduct facility insulation increased in 11.0% in 2009 in comparison to 2008 (from 15.3% to 26.3%), but this percentage increased in 2010 by 2.7% in comparison to 2009 (from23.6% to 29.0%) and is significantly higher than in 2008 (in 13.7% - from 15.3% to 29.0%).

- The **most important reason for not implementing** some of energy efficiency measures for all three years of survey conducting was **the lack of funds.**
  Percentage if citizens who as the reason for not implementing energy efficiency measures stated financial capacities, during three years of research, has recorded mild increase (72.0% - 76.7% - 79.6%).

8. ANNEX

8.1 Questionnaire

Condition for interviewing: Respondent lives in his/her own apartment/house

1. **Which of the following energy-generating products you <u>most often</u> use in your household:**
   1. Electric energy
   2. Wood
   3. Gas
   4. Other, specify_____

2. **What energy-generating product do you use for <u>heating</u> in the winter period:**
   1. Electric energy ("on electricity")
   2. Gas
   3. Heating oil

4. Wood
5. Coal
6. Solar energy
7. Heating pumps
8. Other, specify_____

3. Which of the listed devices do you use for <u>cooling</u> in the summer period:

1. Standard air condition
2. Air condition with inverter
3. Fans
4. Heating pumps
5. Other, specify_____
6. We don't use cooling devices

4. Have you considered to decrease your electricity bill in your household:

1. Yes, often
2. Yes, sometimes
3. Rarely
4. Haven't thought about it

5. Have you taken any actions in your household in order to decrease your electric energy consumption?

1. Yes, specify measure_____
2. No

6. Do you what term energy efficiency implies?

1. Yes
2. I suppose I know, but I am not sure
3. No (skip to Q9)

7. How would you define energy efficiency?

_____

8. Have you noticed any information in the media regarding rational energy consumption by increasing energy efficiency?

1. Yes
2. No (skip to Q10)
3. I am not sure (skip to Q10)

9. How did you hear about energy efficiency (*multiple answers possible*):

1. Newspaper advertisement
2. Published articles about energy efficiency (newspapers, magazines, Internet, etc.)
3. TV commercial
4. Radio advertisement
5. Energy efficiency web site visit
6. From a friend, relative
7. Via film energy efficiency in Montenegro
8. TV show "Smart energy"
9. Informative TV broadcasts
10. Regional conference on energy efficiency
11. Other, specify_____

10. Have you noticed promoting TV commercials on energy efficiency?

1. Yes
2. No (skip to Q12)

11. What impression those TV commercials made on you (choose only 2 answers):

1. Humorous
2. Boring
3. Informative
4. Stimulate implementation of some of the measures
5. Other, specify_____

12. How would you define an Energy Bus and what is his purpose?

_____

13. How would you define the term Energy Audit in buildings?

_____

14. How would you define the term 'Passive House'?

_____

15. Among the following examples, is there any that you haven't heard of so far? (Specify *only those you haven't heard of)*

1. Use of saving light bulbs
2. Devices of energy type A (*explanation: devices with minimal energy consumption*)
3. House/apartment isolation
4. Windows with low-e (low emission) (*explanation: windows with better isolation*)
5. Thermostat valve
6. Condensate boiler
7. Solar collector and photo-voltage cells
8. Air condition with inverter
9. Heating pump
10. Other, specify _____
11. Nothing of the above

16. Have you <u>implemented any of energy saving measures</u> in your household in the last *(multiple answers possible)*

1. Use of saving light bulbs
2. Devices of energy type A (*explanation: devices with minimal energy consumption*)
3. House/apartment isolation
4. Windows with low-e (low emission) (*explanation: windows with better isolation*)
5. Thermostat valve
6. Condensate boiler
7. Solar collector and photo-voltage cells
8. Air condition with inverter
9. Heating pump
10. Other, specify _____

17. Which of the following measures you would be willing to implement in your household? *(specify all measures you would implement)*

1. Use of energy saving light bulbs
2. Devices of energy type A *(devices with minimal energy consumption)*

3. House/apartment isolation
4. Windows with low-e (law emission) (*windows with better isolation)*
5. Thermostat valves
6. Condensate boiler
7. Solar collectors and photo-voltage cells
8. Air condition with inverter
9. Heating pump
10. Other, specify_____
11. Nothing of the above

18. Please specify the reasons <u>for not implementing</u> some of the <u>mentioned measures</u>?

1. Lack of information
2. Lack of financial resources
3. Inaccessibility of adequate products
4. Lack of information about relevant contractors
5. Inability to reach agreement with other tenants in common residential building
6. Some other reason, specify_____

<u>SET OF DEMOGRAPHIC QUESTIONS</u>

1. How many persons lives in your household:

1. Total number _____
2. Number of employed persons_____
3. Number of unemployed _____
4. Number of retired persons_____
5. Number of pupils _____
6. Number of students _____

2. Do you live in:

1. House, specify floor area_____
2. Apartment, specify floor area _____

3. Your level of education?

1. Primary school
2. Secondary school
3. Higher school/faculty
4. Other, specify_____

4. Gender:

1. Male 2. Female

5. Age

1. 15 to 29 2. 30 to 44
3. 45 to 59 4. 60 and more

6. What is the amount of total monthly income of your household (some of all incomes of household members?)

1. Up to 350€
2. From 351 to 500€
3. From 501 to 1000€
4. From 1001 to 1500€
5. More than 1501€