Environmental good practice to life by the help of renewable energy through the example of some settlements

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Abstract
The environmentally conscious lifestyle is widespread overall in the world but not very common in Hungary yet. We all want to live in an environmentally friendly way to the future generations, which will only succeed if we start the environmentally conscious life-time education now and for future generations. We have to take steps not only personally but overall also to help to realise why so important to form this environmental development. One way to use renewable forms lies that has even a rudimentary degree of utilization in many countries, including large parts of Hungary as well. Many people feel that they can do is out of proportion to what it can achieve, and this incorrect thinking the main obstacle in the spread of environmentally conscious approach.
The aim of my research was that through the example of some settlements of Heves county renewable energy as environmentally conscious life education opportunities in the instruments of investigation.
In my primary research I wanted to examine some settlements in Heves County how familiar are the people to the knowledge of renewable energy and how this can help as a tool for environmental education for life.

Keywords: environmentally conscious lifestyle, environment-friendly, renewable energy, settlements

JEL Classification: O13, P28, Q42, R11

1. Introduction
For most of the people being environmentally friendly means having a lifestyle that are better for the environment. This means we have to define ourselves and have to take small steps towards the Earth so we can make this planet a better place for our communities and generations in the future (Being environmentally friendly, 2016).

The basic question is how the renewable energy as a means of education to environmental good practice to life can help us by the help of some settlements as example in Heves county.

If we want to find the answer to this question we can think of the following options which would be good choices to start with: Pay off in the long run to consume less energy for example in the household like installing LED lights or use effectively the natural skylights. Other ways can be the water conservation, become less reliant on cars and rather walking more, eating locally grown vegetables, buying recycled products (for example paper bags, paper cup, synthetic material, etc.) or use fewer chemicals (Begley, 2008). Even we can join environmental groups to combat different kinds of air pollution like carbon dioxide or the greenhouse gas which are the main pollutants that are warming the Earth (Wengenmayr – Buhrke, 2012).

In this study my aim was to investigate how the population will be able to live being environmentally friendly through the example of some settlements of Heves County by the help of the renewable energy.
1.1 The importance of becoming environmentally friendly

In the aspects of the future it is the interest of all to become environmentally friendly. The renewable energy can be a good way to help in this lifestyle. At the moment we can use the following renewable energies:

- **Solar energy**: Inexhaustible and cheaper than the other kinds of renewable energies. The solar energy now powers everything from portable radios to homes, stores and neighborhoods. My own researches prove that in Heves County this is very common in towns and villages by usage. Great examples are Visonta, Abasár, Gyöngyös, Eger or Egerszalók (Sembery – Tóth, 2004).

- **Wind energy**: Wind energy costs about the same as electricity from new coal- and gas-fired power plants, and also it’s pollution-free. It is rarely used not only in Heves County but overall in Hungary yet. The main reason can be that the circumstances are not good enough to use this kind of energy effectively.

- **Biomass energy, cellulosic ethanol**: Biomass is organic matter derived from living, or recently living organisms. Biomass can be used as a source of energy and it most often refers to plants or plant-based materials. Plant materials, such as wood, corn, and soy also included but in Heves County it is still not typical (Kovács, 2010).

- **Biogas energy**: Biogas typically refers to a mixture of different gases produced by the breakdown of organic matter in the absence of oxygen. Biogas can be produced from raw materials such as agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste. In case of Heves County there are some
municipalities like Hatvan, Kisnána, Markaz, Karácsond, Recsk, Gyöngyös, Gyöngyöspata and Gyöngyöstarján which are using biogas energy (Source: own research, 2016).

- **Geothermal energy**: Reservoirs of steam and hot water beneath the earth's surface hold enormous potential as a renewable energy resource. Hungary geothermal energy assets in the subsurface rocks formed during the geological eras provide heat content. Our country belongs to the group of countries with favorable geothermic. It has better rate than the world’s average level in geothermal gradient, high water-bearing rock mass is present in large quantities at one time. In case of Hungary could be good opportunities to use this renewable energy but it still does not have the right technology and the financial resources. Efforts are already planned for the future usage from 2016 to 2020 thanks to the tenders of European Union (European Union 2020 renewable energy targets, 2016).

- **Hydropower**: Derived from the energy of falling water or fast running water, which may be harnessed for useful purposes. While water is a renewable resource, rivers themselves are not. Hungary technically usable hydropower potential of approx. 1000 MW, which goes beyond the production of electricity actually recycled or recovered hydropower potentials. The percentage distribution roughly as follows: Duna 72%, Tisza 10%, Dráva 9%, Rába-Hernád 5%, Other 4% (Source: Vízenergia hasznosítás Magyarországon, 2016).

- **Off shore wind, wave and tidal energy**: Offshore renewable energy holds great promise, and can be developed in a way that protects our ocean resources. Since Hungary does not have any sea we can not use the benefits of this kind of energy.

2. **Data and Methods**

The aim of my primary research was to gather as much information and opinion about the main topic which is how we can become environmentally friendly by the help of the renewable energy. I examined some municipalities in Heves County where we can find this kind of efforts.

I used standard questionnaires as a method. A standardized questionnaire guarantees that the same monitoring process applied to each respondent. It is a very effective but simple way to gather primary research. As a first step it was important to ask from the respondents whether they know the meaning of renewable energy. Based on the opinion of respondents I also wanted to know which renewable energy can help the most to develop the environmentally conscious lifestyle.

3. **Results and Discussion**

To know more about the environmentally friendly lifestyle it was necessary to ask in the questionnaire whether the population of the major towns in Heves County know what the renewable energy really is. I prepared the survey in four major towns in Heves County which are Eger, Gyöngyös, Hatvan and Heves.

From every town 60 person filled the survey (total 240), in this way I was able to separate the answers by 3 different types: 1. They mostly know the meaning of renewable energy (Yes, I know). 2. They only know just a few things about renewable energy sources (Just a few). 3.
They do not know much or do not know anything at all about renewable energy (No, I don’t know).

**Figure 2: The percentage of respondents regarding the knowledge and definition of renewable energy (2016)**

Source: Own research and compilation on the basis of primary questionnaire, 2016

Based on Figure 2 we can see that Eger has the highest respondents rate on answer one, which means 67% of the respondents mostly know what is the definition of renewable energy. Compared to Hatvan or Heves it has a high knowledge rate. From the 60 respondents each town only 22% of them know just a few things about it and 12% of them do not know anything about the meaning of renewable energy. In case of Gyöngyös the knowledge about the definition of renewable energy also high, exactly 60% which is also a high rate.

The 23% of the respondents said they not really know the defintion of renewable energy and 17% of them do not know anything at all about the meaning. Hatvan has different values because slightly more than half (52%) answered they know the meaning of renewable energy. Only 20% of them said they know something about it and 28% of them answered they do not really know what is the meaning of renewable energy.

Based on Figure 2 we can say in Hatvan and Heves should make more efforts because in the next few years the importance of renewable energy will increase greatly and they will be at disadvantage in development projects. The fourth is Heves where based on the answers of respondents 42% of them have knowledge about renewable energy and 28% know just a few things about its definition.

I also wished to know whether the respondents of my questionnaire live environmentally responsible and have the right behaviour to fulfill this intention. The question was: “Do you live environmentally responsible?”
Based on the results of Figure 3 the 68% of the respondents answered they are able to live environmentally responsible and they have the right behaviour. Roughly one-third said they are not living environmentally responsible or they do not have the opportunity to fulfill this behaviour. It mentioned in the responses received to the questionnaire how they can live environmentally responsible. Positive ways are: The minimization of energy consumption; improving the thermal insulation; energy-saving lamps; low-power car; solar energy and geothermal energy utilization rate of increase; selective waste collection; taking only the necessary products; increased use of public transport (Source: own research, 2016).

The other 32% who do not live environmentally responsible life had the following reasons as the downsides of the renewable and green energy: Buying solar panels are expensive; limited opportunities in occupied housing estates; the overhead reduction recovers can only be recoverable after many years (in case of solar panels 4-8 years); the technology is still expensive and not timeless; the energy saving is not enough incentive (Source: own research, 2016).

**Figure 4: Methods which are the most effectively reduce the energy consumption and the environmental impact (2016)**

1. Eco-friendly transport (walking, cycling, public transport)
2. Buy Local Products
3. Waste collection
4. Less consumption of products of animal origin
5. Reduce Household Waste
6. Reducing the use of lights / lamps, energy consumption
7. In winter, the heat level down claims (more layer of clothing)
8. Do not let the devices in standby mode
9. Use the full capacity washing machine
10. If you buy a new device, consciously pay attention to energy consumption
11. Other
Figure 4 illustrates the opinion of 240 respondents who filled in the questionnaire about the methods which the most effectively reduce the energy consumption and the environmental impact in case of Eger, Gyöngyös, Heves and Hatvan towns which can be found in Heves County.

The result of Figure 4 shows that the Eco-friendly transport as method which include walking cycling and public transport has the highest rate of usability. It means the 18% of respondents answered that the Eco-friendly transport can effectively reduce the energy consumption and the environment impact. According to the respondents the second most effective method is the appropriate waste collection which is 16% compared to the 100%. The third method is if we buy a new device we have to consciously pay attention to the energy consumption. The respondents’ opinion shows this also has a high rate of importance (15%). Furthermore also important methods the reduction of the use of lights (13%), the buying of local products (11%) and the reduction of household waste (11%). The other methods like the usage of devices in standby mode (5%), the heat level down claims in winter (4%), using the washing machine in full capacity (3%), less consumption of products of animal origin (2%) are not significantly important according to the respondents.

4. Conclusion

Based on the above studies and primary researches it concluded that for Heves County of renewable energy as a concept, is not yet sufficiently widespread. In this study I focused on the major cities of Heves County like Eger, Gyöngyös, Hatvan and Heves. It can be concluded that the renewable energy as definition and as technology in Eger and Gyöngyös it has been used quite a high percentage like 67% and 60%. In case of Hatvan and Heves these percentages are 52% and 42% which means the respondents who answered the survey from these two towns do not know the definition of renewable energy well yet.

As regards the future it is a must to get more knowledge about renewable energy and about that also how it can help to live environmentally responsible life or change our behaviour if we still not live like this. Figure 4 helped to illustrate 10 different methods which are effectively could reduce the energy consumption and the environmental impact. The three most effective methods are the Eco-friendly transport, the appropriate waste collection and the importance to consciously pay attention to the energy consumption when we buy a new device. At the moment I was only be able to make my primary research in four different towns comparing them together but in the future I have plans to extend my researches to bigger areas, regions as well.

We should take notice of how we can do more for the development of environmental awareness. I examined four major towns in Heves County where the 68% of the respondents of the survey already live environmentally friendly noticing really good options to help the environment for example the minimization of energy consumption or the solar energy utilization rate increase. But on the other hand there are the other 32% of respondents who are not living environmentally friendly or just simply they do not have the opportunity to find solutions to live in this way.

It is a must to encourage all people to choose to live in this way if they have the opportunity. This will not only serve their own interests, but also everyone including future generations as well who want to use the same environment (Laughlin, 2011).
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