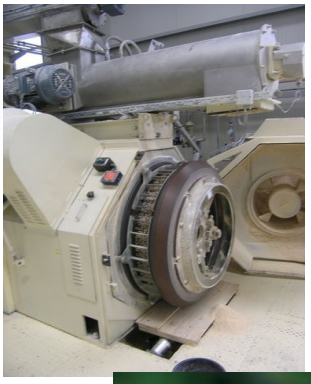

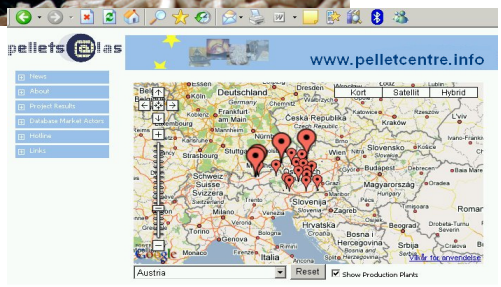

Development and promotion of a transparent European Pellets Market

Creation of a European real-time Pellets Atlas

Pellet market country report

HUNGARY

Intelligent Energy Europe

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October 2009

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This report is available at the pellets@las website at www.pelletsatlas.info

The pellets@las project is supported by the European Commission under the EIE programme (EIE/06/020/SI2.448557). The sole responsibility for the content of this report lies with the authors. It does not necessarily reflect the opinion of the European Communities. The European Commission is not responsible for any use that may be made of the information contained therein.

TABLE OF CONTENTS

1. Introduction 4
2. History and present.....5
3. Pellet production 6
4. Pellet trade and logistics 7
5. Pellet consumption 7
6. Mixed biomass pellets 9
7. Support and subsidies.....11
8. Projections on future developments 12

1. Introduction

The Hungarian pellet market is at an initial stage. The production capacities and supply chains formulate randomly without any supreme governance.

However, an advantageous step was that in the second half of 2008 the Hungarian Pellet Association (www.mapellet.hu) was founded, with the aim to protect quality requirements and to support those market actors who contribute to building a reliable national pellet market.

The country can be divided into two main parts, both geographically and by the raw materials used for pelletizing.

In the western and northern part of the country the main feedstock for pellet production is wood/wood by-products. The companies there are mostly connected to foreign markets such as Austria and Germany. So far only limited information on marketed amounts and standards is available.

On the south-eastern part of the country there are extensive rural territories and the main land use form is arable. Therefore the main feedstock for pellets is agricultural products. Straw pellets and pellets from energy grass are dominating the market. Several agripellet producers with limited production capacity operate with ad-hoc working time based on orders.

The pellet prices for both wood pellets and MBP are hardly comparable to most of the European countries due to the hectic changes in the currency exchange rate. Converting the prices to euro results in an uncommon situation in the second half of 2008 with higher summer and lower winter prices (Currency exchange rate in summer was around 1EUR ~ 230 HUF, while the autumn rate was app. 1EUR ~ 260 HUF).

This country report, due to a lack of literature and the complete absence of statistical data in officially managed statistical databases on production, trading or selling points of pellets, is highly based on personal interviews and discussions with experts and stakeholders from the Hungarian pellet sector. This year, also a master thesis was submitted to Vienna University of Technology as the first “official” written analysis of most aspects of the Hungarian pellet market. The thesis title is “The Pellet Market in Hungary” (Main characteristics of the pellet production and consumption and a possible way of growth in Hungary). The author himself also stated the absence of literature and dealt with mapping and interviewing market actors as the main part of the work. Geonardo, as a pellets@las partner, is proud that we could provide help through the organization of the pellets@las – Pellet conference, which was a great opportunity to gather actors participating in this sector. Due to good relation we are authorized to use the major findings of this thesis.

2. History and present

The possibility to open this sector appeared in countries like Sweden, Austria or Germany due to the existence of huge reserves of waste from the wood processing industry. The idea was simple and suitable for a number of reasons. The raw material was very well concentrated; it was available in large quantities because of considering it as waste over the past years. The heating system of households was diverse, not so dependent on natural gas as in some Eastern-European countries like Hungary. Even more the individual heating system of single households in the aforementioned countries made it possible to switch easily from e.g. heating oil to wood pellets, using the existing logistics and infrastructure. The conditions both on supply and consumer side were ideal to build a whole industry on the newly found raw material. Although the nature of the feedstock means that the development of the market has limits. As a “product” of another industry sector it carried the treat that this development cannot be endless. The grown consumption of pellets was higher than “reproduction” of the raw material so Western-European markets looked for new sources. Countries from Eastern and Southern Europe and even North America became potential import countries on the supply side (see wood pellet market studies, WP6).

This possibility existed in Hungary as well. But given Hungary’s land cover, we can’t say that the country is best fitted to supply the wood pellet needs of the western markets. Hungary has around 20 % of forested area, which is significantly lower than in other European countries. Thus the wood processing industry is small and limited towards being a reserve for foreign pellet markets. Beside this, pellet production plants were established specially throughout the middle and western part of the country, where most of the forested area can be found and the closeness of other markets made it possible.

The existing minimal capacity is prepared to serve western European needs with their standards but with very low amounts so far. But huge projects are on the way that can multiply Hungary’s production easily in 2009 as will be shown later. In fact it is not really difficult due to the actual capacity being only a few thousand tons.

With reference to boiler and stove traders, hundreds of new pellet appliances were installed in 2008, but we can’t speak of a “sales-boom” because of the relative unknown technology and the domination of central heating supplied by natural gas or district-heating. It can be stated that these consumers are house owners who build new houses and are aware of the possibility to use pellets for heating.

This report will dedicate a separate section to so-called agripellets or mixed biomass pellets. It is often said that Hungary has, to date, unused potential in this field and activities and research has been going on since the recognition of agribiomass as an alternative to wood fuels. Innovation has been achieved in pelletizing technology and designing and manufacturing combustion equipment, both suitable for different sources of raw material.

3. Pellet production

Throughout the past years it was really hard to draw a map with pellet producers in Hungary as some investments were successful and some of them were not. Projects were sometimes unrealistic and in many cases web sites are advertising the production and trading of pellets but the activity behind it does not exist any longer or never existed. It is a common experience from Geonardo and from others who tried to map the actual market actors that also fake information can be found in advertisements providing unreal information on capacities without ensuring any standards for produced pellets.

However, independently executed research showed the same picture about reliable pellet producers. Also the Hungarian Pellet Association (HPA) helped to identify the actual pellet plants.

The map bellow shows the justified pellet producers.

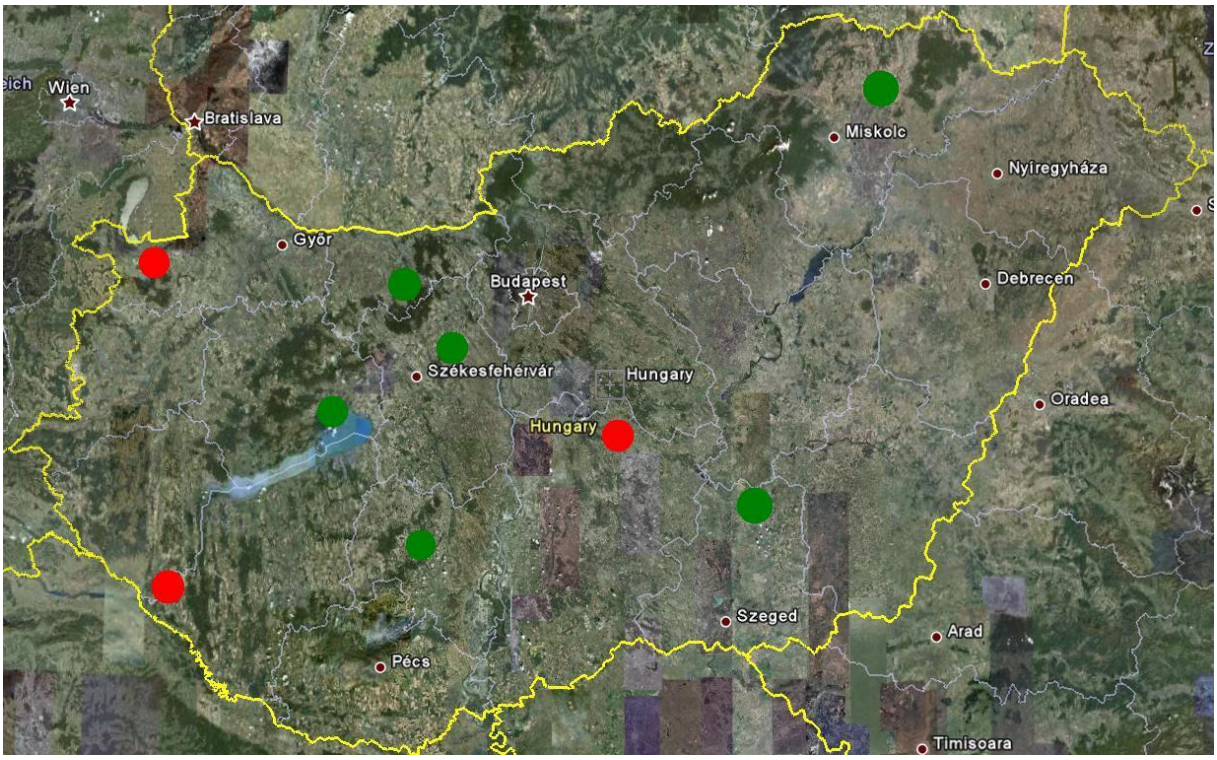

Figure 1: Pellet production plants (Data source: Zsolt Kazai, The Pellet Market in Hungary, 2009; Map source: Google Earth)

It can be stated that the known production in 2008 was around 5000 tons including test operation in some cases. It is worth to note that this amount was not homogeneously wood pellets. A significant portion of this was agripellets, according to Kazai[1] (2009).

[1]The pellet Market in Hungary, Zsolt Kazai, 2009

Based on a public report of the HPA in 2009, after plant tests, the aggregated capacity of Hungarian pellet production will be almost 20 times bigger then it was in 2008. Three major investments took place in recent years, which made the capacity 6000 tons in Petőháza, 11000 tons in Belezna and 80000 tons in Lajosmizse (with red dots in Figure 1.). We are lacking information regarding the quality of the produced pellets, but it is also public that these projects plan to produce pellets mostly for foreign markets.

4. Pellet trade and logistics

As mentioned earlier, most of the production capacity is set up close to the available raw material, which means generally the western part of the country. These market actors based their activity of producing and trading wood pellets on the possibility to export their product. The producers in the south-eastern part of Hungary based their production on agricultural main or by-products. Most of the producers from this region are working seasonally, as a result of the raw material occurrence, just to serve the local needs in the area without trading larger amounts.

Regarding the packing type of pellets, the majority of pellets is sold in small bags (15 kg to 50 kg), followed by big-bags (500 kg to 1500 kg) and pellets sold loosely were just a little slice of the bidding (Kazai, 2009[1]).

In Hungary, the possibility to deliver loose pellets to households is not realistic yet. Generally, there are no special rooms or sheds built next to the family houses for heating purposes. The common form of central heating supplied by natural gas does not demand special storage places. These households are not able to store bigger amounts of pellets and the construction of storage space in new houses or the modification of existing buildings require additional investments.

Single household consumers usually can buy small bags of pellets in multinational retail chains in Hungary as well. Petrol stations also offer firewood, wood chips and briquettes or pellets. The quality of these pellets is not always satisfying according to the experience of questioned experts. A solution can be to buy pellets from boiler or stove traders, who ensure the pellets quality needed for their equipments.

5. Pellet consumption

Consumption can be best approximated by sales figures from boiler and stove manufacturers and traders. But it is not possible at the moment to say even with that estimation we are close to real numbers. Most of the Hungarian consumers have small or medium size capacity, thus there is no survey or questionnaire that can be distributed among all of them. Even with hard work based on the approached consumers and their feedbacks, Kazai[1] concluded just a really small portion consumed by domestic users of the total Hungarian production. The overall number of questioned consumers were only enough to get a picture of the purchase habit, satisfaction rate about the technique and other sociological themes.

Based on interviews the sales increased to around 500 pellet stoves and over 2000 boilers in 2008. Concerning these numbers we should consider that our interviews do not represent the whole market so that underestimations are possible. We also have to add, that the Hungarian investments on the field of boiler manufacturing are not

focused only on equipments fed with wood pellets, but they can use mixed pellets, wood chips and other biomass energy sources.

Considering the above mentioned sources, and the fact that a significant portion of the boilers were exported, the pellet consumption in Hungary in 2008 was around 1,000 tons (rough estimation).

If we have a look at the prices it can be concluded, that wood pellets in bags are sold between 45-55 HUF/kg and 35-40 HUF/kg is the price of agripellets or mixed biomass pellets. These prices were quite stable in the past years, naturally seasonal changes can be observed. The above-mentioned numbers can be converted to euro, but if we try to put the prices on a graph it won't show the real market values. Hungary's economy is continuously changing and the exchange rate is largely fluctuating even in short periods. This is the reason for last years´ price index as shown on the pellets@las website.

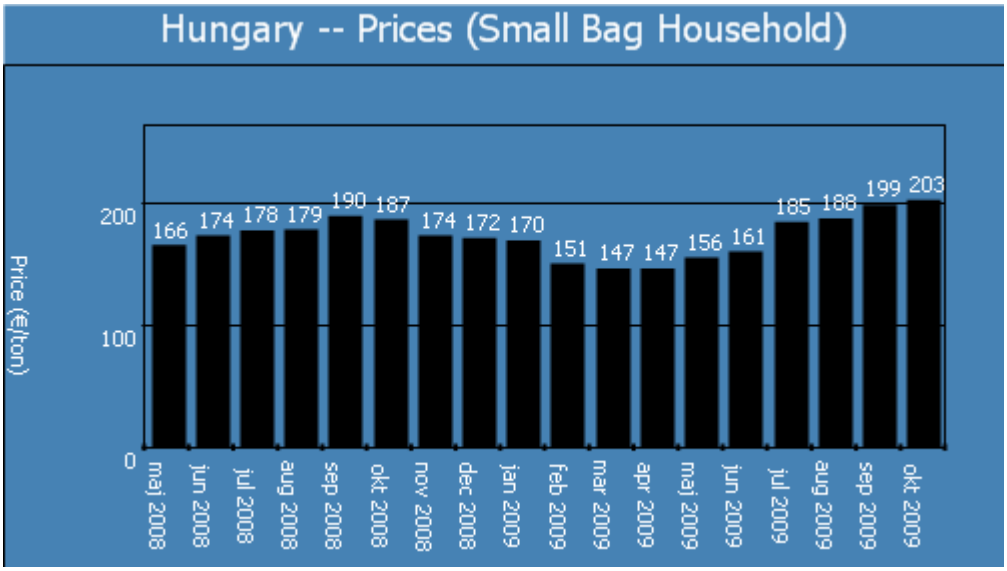

Figure 2: Average pellet price index from May to October 2009[2]

From May until November 2008 the exchange rate changed by 30 HUF from 230 to 260. In the winter of 2008/2009 the Hungarian currency was down and banks sold the euro for more than 300 HUF. In spring 2009 the exchange rate is between 270-290 HUF, which makes tendencies concerning import and export unpredictable.

[2] In an earlier version of this report, average monthly exchange rates were used. In this version, the exchange rate of the first day of each month is used.

6. Mixed biomass pellets

It is well known that Hungary's industry is based on agriculture, as a result of its topography and excellent climate for agricultural production. The total area of Hungary is 9,300,000 acres. Plains and hills have a variety of terrains. Mountains are mostly forested. According to the Hungarian Central Statistical Office in 2006, the area of fertile land, excluding fishponds, was 7,641,000 acres (82.16 %). Excluding forests, the agricultural land area was 5,864,000 acres, which is 63.05 % of the total area. 1,000,000 acres was grassland. Kitchen gardens, orchards and vineyards in total were 293,000 acres and arable land with cereals and non-cereal plants was 4,500,000 acres.

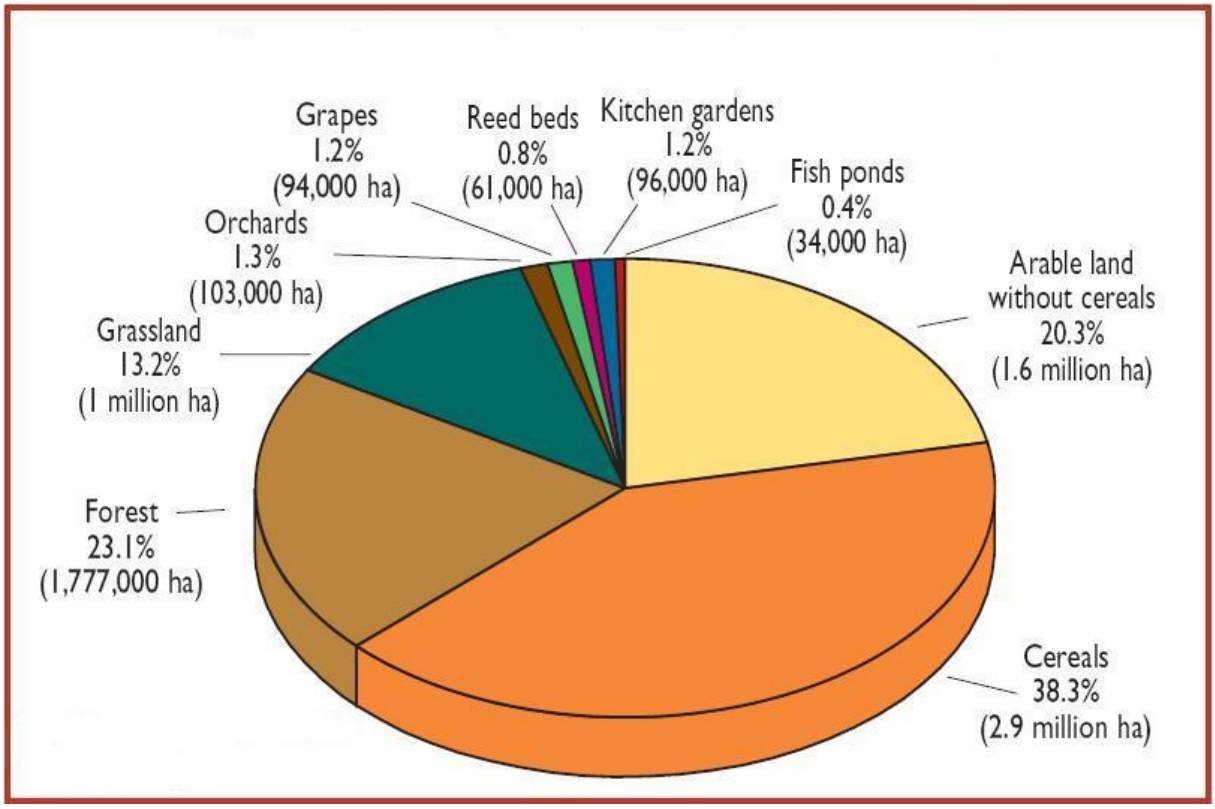

Figure 3: Shares of cultivated area by cultivation branches, 2006 (Data source: Central Statistical Office - KSH, Ministry of Agriculture and Rural Development - FVM)

Table 1: Potential amount of by-product of these land use categories (Fenyvesi, Ferencz, Tóvári, 2008)

Cereals' straw	3.5 – 5.5 million tons
Corn and sunflower stalk	11.2 – 15.5 million tons
Orchards and vineyards lopping	0.38 – 0.40 million tons
Road maintenance cutting	0.8 – 0.9 million tons
Sum	**15.88 – 22.3 million tons.**

With the calculation of the Ministry of Agriculture and Rural Development - FVM (pellets@las - Pellet conference, March 2009), the amount of realistically collectable agricultural by-products is around 5.4 to 5.95 million tons, if we add the “other by-product, wastes“ regarding the ministry’s terminology. These calculations are based on recent agricultural land use structure and don’t count land, that can be used to produce plants, especially for energetic purposes. The Ministry’s estimation says that 350,000 – 400,000 acres of land could be used directly for that reason resulting in 5.6 million tons of additional raw material per year.

The reason why the above-mentioned potential is not used to date is originating in the lack of a complete working/operating system to collect, treat and process the by-products and wastes from the agricultural sector.[3]

There is a declared raw material amount that could be utilized in Hungary for energetic purposes, and different kinds of biomass are already used or will be used in power plants. The biomass feedstocks for these plants are mostly unprocessed forestry or agricultural residues and by-products.

Innovation has been made in the field of boilers as well, as several Hungarian boiler manufacturers are producing and selling equipments that are able to burn pellets from other sources than wood. Thus the way is opened from this point. However the utilization of mixed biomass pellets has not started yet in bigger amounts.

[3] Zoltán Kálmán, FVM, Rome, 2008;

http://www.fvm.hu/main.php?folderID=2266&articleID=12085&ctag=articlelist&iid=1

7. Support and subsidies

Table 2: Legal framework and policy (Based on: Kazai, The Pellet Market in Hungary, 2009)

Environment and Energy Operative Program – *KEOP* – (Subsidies for technological development)	• *KEOP-2009-4.2.0/B* • *KEOP-2009-4.4.0* • *KEOP-2009-5.3.0/B* • *KEOP-2009-5.2.0/B*		
Economic Development Operative Program – *GOP* - (Subsidies for economic development)		• *GOP-2009-2.1.1/C* • *GOP-2009-2.1.2/C*	
New Hungarian Rural Development Plan (Subsidies for agriculture)			• Wood plantation • Energy crop plantation • Biomass combustion technology • Energy crop premium

The KEOP, as a part of the New Hungarian Development Plan and the New Hungarian Rural Development Plan (NHRDP) are prepared for the 2007-2013 period. Both rely on the EU structural founds.

KEOP is designed for strengthening environmental protection, development of the environment infrastructure and for promoting a more efficient use of natural resources. It is for investors who want to change or develop the infrastructure of their existing facility.

NHRDP is for increasing the use of renewable energy resources and for inspiring the more effective energy consumption.

GOP is an excellent opportunity for new investments for example establishing and building a pellet plant. The one that was built in Lajosmizse used the GOP-2.1.1/C tender type to gain subsidy. Unfortunately both GOP tenders are closed actually.

In Hungary at least two banks offer services/financial constructions for investors who intend to invest money in biofuels (including solid) projects. Both of these two banks were presented at the pellets@las – Pellet conference in March 2009.

The production of „green energy" using renewable energy sources is obligatory to be bought by the state from the producers, and it is aided because of the possible disadvantage in the competitiveness of the usage of alternative resources.

In Hungary there will be 3 VAT levels as official sources reported this year. Some members of parliament said during spring 2009, that there is a promise, from the government side, to put the renewable energy in the middle VAT level from the highest. The exact text of the bill is not public yet.

8. Projections on future developments

It is expected that the foundation of HPA will accelerate the development of the Hungarian market. This year the number of HPA members has more than doubled.

HPA Tasks:[4]

- Develop an accredited Hungarian quality assurance system,
- Organizing courses and trainings for building engineers, architects, and experts,
- Running a website with relevant links and news,
- Active contribution to shaping authority process and consumers protection.

Benefits of the actions suggested by HPA within 6 years:[5]

- Saving 716 m^3 natural gas annually,
- 35.5 billion HUF running cost saving in the residential sector,
- Appearing of dynamically developing and competitive industrial and service sector,
- 1600 new jobs in the sector,
- Plus 3.5 billion HUF to the budget from the incidental expenses resulting from new employments,
- 58 billion HUF of regional capital generation annually, which would stay on the spot,
- CO_2 emission decreasing, in the 6th year 5.5 billion HUF incomes from CO_2 quota.

The pellet market could have a leading part in the new rural development of the country. There are two main considerations regarding the raw material. The export markets inspire the investors to start projects based on forestry or wood processing industry main or by-products. The shortage of the Hungarian forests limits the growth of wood pellet production in the country. The necessary raw material can be obtained if round wood is being chopped and utilized in later phases of production. For this only mature forests can be considered as feedstock due to its size (e.g. diameter at breast height). Chemical/pollution properties and calorific value attributes have to be considered as well. In this case the “renewable” phrase should be considered as “longer term renewable” that is already not so comfortable to handle. However, forestry experts say that Hungary has unused resources also in this field, if the exploitation of these capacities from existing forests would be utilized. Or another

[4] Emese Burján – vice-president, HPA;

http://www.greenfo.hu/hirek/hirek_item.php?hir=20482, 2009

[5] pellets@las – Pellet conference, March, 2009

way can be to use our potential, if the country would use its assessed land for energy forest plantation. Even though it is well known that the species suited best for plantation (like willow, or poplar) do not have the best burning properties (e.g. calorific value).

Utilizing agribiomass is the other possibility for further development. Investors need to find solutions mostly for the logistics of harvesting/collecting, delivering and storing the raw material. Storage and trade of agripellets have to be developed as well. Current facilities and infrastructures are not suitable for answering occurring problems.

Also the financing side is problematic as a result of the above-mentioned difficulties. A possible way to overcome this barrier could be to inspire the entrepreneur to give a vertical service to his client. It could mean that the investor organizes the whole process from the harvesting of biomass, through the production of pellets and the provision of machines to the consumer, up to the supply of heat and the service of the installed equipment. A project can fail even because of the efficiency of the harvesting machine. The current economic situation does not support this kind of new investments.

However, the possibility does exist, if the afore mentioned aspects are addressed. The target group of this system could be the small and medium scale consumers, who can consider technology change in their heating system.