

Transnational project:

***“ Methodological toolbox for development of new skills  
for new jobs ( JS TOOLBOX)” .***

within the framework of :

**The European Community programme:**

**TRANSFER OF INNOVATION, MULTILATERAL PROJECTS  
LEONARDO DA VINCI LIFELONG LEARNING PROGRAMME  
( Decision no. 1720/2006/ EC of the European Parliament and of the  
Council of 15 November 2006 )**

Drawn –up by :

**Partner 3 of this Project ;**

**Staropolska Izba Przemysłowo-Handlowa**

**( Chamber of Industry and Commerce “Staropolska”)**

Project team:

Dorota Tekieli – Bisińska – *Manager*

Ryszard Zbróg – *Researcher 1*

Wojciech Dawiec – *Researcher 2*

Kielce : April 2012

**The activity plan to *Leonardo da Vinci* project drawn up by Partner 3 –  
Chamber of Industry and Commerce “*Staropolska*”**

**Preface**

**I. General information.**

- I.1** Information about Poland compared to the EU.
  - I.1.1 Poland location and demographic data;
  - I.1.2 Poland’s economy and economic factors
- I.2** Information about Świętokrzyskie province compared to Poland
  - I.2.1 Świętokrzyskie province location and demographic data;
  - I.2.2 Świętokrzyskie province economy and economic factors.

**II. Construction sector in świętokrzyskie region.**

**III. Vocational education system in świętokrzyskie region:**

**IV. External and internal circumstances impacting on future needs of  
construction market in świętokrzyskie region:**

- IV.1** The EU technological requirements, recommendations and actions for implementing of pro-ecological, innovative, energy saving solutions and technologies connected with construction sector.
- IV.2** National and regional circumstances impacting on regional construction market.

**V. External and internal circumstances impacting on the future needs of  
vocational education system in the świętokrzyskie region:**

**VI. Existing professions and competences in construction-housing market in  
świętokrzyskie region:**

## **VII. The employees competences required by future construction- housing market in świętokrzyskie region.**

**VII.1** Technical aspects concerning the demands of future construction-housing market.

**VII. 2** Dominant future profession demanded by regional construction-housing market.

**VII.2.1** The existing and future needs of construction-housing sector in świętokrzyskie region and definition of dominant future profession.

**VII.2.1.1** The areas of new skills and competences requirements for new profession: "general construction-housing worker in energy-saving and passive buildings.

**VII.2.2** Other existing professions in construction-housing market in świętokrzyskie region which will require to improve / upgrade the workers competences only

## **VIII. The conclusions of CIC "Staropolska" regarding the existing state and perspectives of vocational education in construction-housing market.**

**VIII.1** The conclusions of CIC "Staropolska" from the workshops held in years 2010 – 2011 and final workshops held in February 2012.

**VIII.2** The conclusions based on CIC "Staropolska" analysis of VET, PES institutions, employers proposals/opinions and investigation of construction sector in świętokrzyskie region.

**VIII.3** Final conclusions.

## Preface:

This Project has been drawn up by Partner 3 ( Chamber of Industry and Commerce “Staropolska”) on the basis of the European Community programme TRANSFER OF INNOVATION, MULTILATERAL PROJECTS LEONARDO DA VINCI LIFELONG LEARNING PROGRAMME ( Decision no. 1720/2006/ EC of the European Parliament and of the Council of 15 November 2006 - transnational project “ *Methodological toolbox for development of new skills for new jobs ( JS TOOLBOX)*” .

The purpose of this project (among other things) is : to evaluate a selected branch of regional market ( considering Partner 3 – CIC it is construction-housing market), assessment of vocational education (VET) in that market, inclusion of the UE, Polish , regional regulations, policies in adaptation of VET system to future needs for development of skills and creation of new jobs in our region, engagement of various partners and institutions operating in VET area and their regional forecasts.

18 workshops have been held by Partner 3 – CIC “Staropolska” with VET, educational, PES institutions and educational sector institutions, concerning the problems and opportunities of vocational education training and future needs of construction-housing sector in świętokrzyskie region The results of these workshops have been supported by CIC “Staropolska” analysis and evaluation of existing state and future development of new disciplines, science and guidelines of the EU- next included in this project. It made this project as more realistic and enabling to find the right model / proposals for better trainings of trainees and trainers / teachers, according to future construction-housing and labour markets needs.

Our project has been based ( among other things) on:

- a) our own (Partner 3 – CIC “Staropolska”) researches of construction sector in świętokrzyskie region ( 50 companies),
- b) our experience in mutual cooperation with construction cluster ( established at CIC Staropolska) in our region during last 2 years,
- c) the data, analyses, studies, elaborations collected from government, non-government, institutions, our meetings with regional construction companies representatives, the

results of 18 workshops held with the institutions closely connected with regional VET, PES and business system institutions.

- d) our own analysis of the EU regulations, directives and plans connected with construction and labour sector, their future needs by year 2020 ( including future needs for: energy saving construction, passive buildings and for skilled and experienced employees by 2020) , as well Polish position in that matter,
- e) the EU policy closely related to future construction market job and education needs (energetic strategy for Europe 2011-2020, energy saving construction industry, future advanced construction technologies – closely related to VET needs),
- f) our two-year analyses, investigation of regional, Polish and the EU construction,- housing, education and labour sector, based on the analysis of existing state and future development of new skills for new jobs in that branch.
- g) collection of various branch information and final conclusions included at the end of each chapter of this project.

This project also evaluates the existing state and forecasting of partnership between business ( entrepreneurs) and vocational education sectors ( vocational schools). It also defines the proposals / solutions for improvement and development of such cooperation. Focusing on a selected and most important sector in our region we managed to define the future needs of construction-housing market and propose the strategy for VET and PES institutions present and future operation.

## **I. General information**

### **I.1. Information about Poland compared to the EU.**

#### **I.1.1. Poland location and demographic data:**

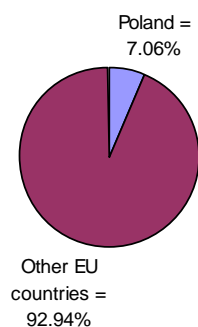
Poland ( the Republic of Poland) is situated in Eastern Europe, bounded:

- *to the north:* by the Baltic Sea and enclave of Russia,
- *to the north-east:* by Lithuania,
- *to the east :* by Belarus,
- *to the south east:* by Ukraine,
- *to the south:* by Slovakia and Czech Republic.
- *to the west:* by Germany .

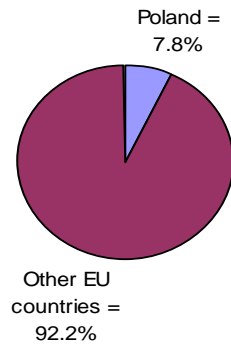


Poland

Poland's area is: 312,685 km<sup>2</sup> and  
the EU total area is : 4,422,733 km<sup>2</sup>  
what makes Poland's area as 7,06 % of the EU area.



Poland population is: 38,600,000 inhabitants  
The EU population is: 495,000,000 inhabitants  
what makes Poland population as 7.8% of the EU population.



### I.1.2 Poland's economy and economic factors.

Poland's economy is one of the fastest growing in Europe. GDP per capita in Poland is: 17,482 \$, what is 57% compared with the EU GDP per capita: 30,670 \$.

Poland is divided into:

- **16 regions / provinces,**
- **314 administrative districts**
- **2,478 communities.**



Poland's economic structure has been focused on the privatization of small and medium size enterprises and liberalization of laws establishing new companies.

Division of employment level in Polish main industrial sectors:

- |                 |        |
|-----------------|--------|
| a) agriculture: | 4.6%   |
| b) industry :   | 28.1 % |
| c) services:    | 67.3%  |

Poland's high-income economy is the 6<sup>th</sup> largest in the EU and one of the fastest growing economies in Central Europe with an annual growth rate of over 6.0% before the late 2000s recession. It is the only member country of the European Union which has avoided a decline in GDP, meaning that in 2009 Poland has created the biggest GDP growth in the EU. Polish economy is of a mixed character. Poland became an attractive place for business investments around the world: this is due to its good geographical location, internal socio-economic stabilization and accession to the EU. Polish main trading partner countries are the European Union and Russia. The richest region of Poland is the Mazowieckie province, which reaches a per capita GDP at 87.1% EU average. This level is comparable to that of the richer eastern German federal states (such as Saxony, 86.1%) or British Wales (86.9%). Polish industry has been divided into so-called industrial branches, and these in turn into different industries, which are as follows: mineral, chemical, steel and construction / building materials, electrical engineering, paper and food industries.

	<b>Poland</b>	<b>CEE Region</b>
GDP in billion USD (2008)	526	4,934
Export % GDP ( 2008)	36	45
Average GDP growth 2005- 2008	5.3	6.0
2010 GDP growth	-1.2	6.0

**b) GDP, inflation, unemployment:**

	<b>2010</b>	<b>2011</b>
<b>GDP growth (%)</b>		
USA	2.5	2.8
Japan	1.8	2.0
Euro-zone	0.9	1.7
<b>POLAND</b>	<b>2.5</b>	<b>3.1</b>
<b>Inflation (CPI)</b>		
USA	1.4	1.2
Japan	-0.9	-0.5
Euro-zone	0.9	0.7
<b>POLAND</b>	<b>2.2</b>	<b>1.9</b>
<b>Unemployment (%)</b>		
USA	9.9	9.1
Japan	5.6	5.4
Euro-zone	10.6	10.8
<b>POLAND</b>	<b>9.6</b>	<b>9.6</b>



## I.2 Information about Świętokrzyskie province compared to Poland.

### I.2.1 Świętokrzyskie province location and demographic data.

Świętokrzyskie province is situated in central Poland, adjacent to *Mazowieckie*, *Lubelskie*, *Podkarpackie*, *Małopolskie*, *Śląskie* and *Łódzkie* provinces.

It is located about 120 km from Cracow and 170 km from Warsaw at national road E-7.

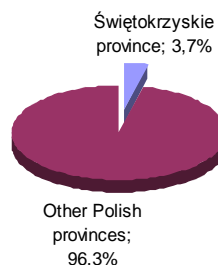
Kielce is the capital of Świętokrzyskie province.



Świętokrzyskie province area is: 11.710 km<sup>2</sup> and

Poland's area is: 312.685 km<sup>2</sup>

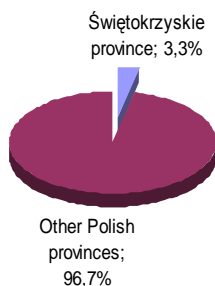
what makes that province area as 3,7 % of the Poland area.



Świętokrzyskie province population is: 1,275,000 inhabitants

Poland's population is: 38,600,000 inhabitants, what makes

Świętokrzyskie province as 3.3% of the Poland's population.



## I.2.2 Świętokrzyskie province economy and economic factors.

Świętokrzyskie province consists of:

- \* 14 administrative districts (*poviats*);
- \* 102 communities.

Some economic factors of Świętokrzyskie province compared to the European Union and Poland:

	<b>The European Union</b>	<b>Poland</b>	<b>Świętokrzyskie province</b>
<i>Area:</i>	<b>4,422,773 km<sup>2</sup></b>	<b>312.685 km<sup>2</sup></b>	<b>11.710 km<sup>2</sup></b>
<i>Population:</i>	<b>495,000,000</b>	<b>38,600.000</b>	<b>1,275,000</b>
<i>GDP per capita</i>	<b>30.670 \$</b>	<b>17.482 \$</b>	<b>12.270 \$</b>
<i>Unemployment rate</i>	<b>9,9 %</b>	<b>11,0 %</b>	<b>15.7 %</b>
<i>Inflation</i>	<b>1%</b>	<b>2,6 %</b>	<b>2,6 %</b>

2.6% of Polish GDP is produced in Świętokrzyskie province.

3.4% of all the employees in Poland are employed in our province.

2.9 % of Świętokrzyskie companies apply high technologies ( in Poland that average index is 6.0%)

The construction industry gives Świętokrzyskie region a significant opportunity for social and economic advancement. The mineral resources found in the region (north and south of Kielce, in the Nida river Valley) provide the basis for the development of the mineral industry, represented by well-known companies of construction sector.

At the end of year 2006, 106,312 enterprises were registered in Świętokrzyskie region (including 85,652 self-employed individuals). These numbers continue to

grow. The enterprise indicator (measured by the number of companies per 10,000 inhabitants) amounts to 799 in our voivodeship, with the national average amounting to 937. Construction- housing sector is the most characteristic for our region, just after commerce-maintenance-services sector. An opportunity for development of Świętokrzyskie region is provided by the construction services industry, including refurbishment, renovation and finishing services ( residential and office buildings first of all). The region offers unique conditions for investing and running business operations in construction area. This is well worth considering, in view of the rising demand for construction-housing objects and services.

So construction-housing sector is a branch with long tradition in our region. It is also a chance for development of our region, which should be properly used, under condition that qualified and skilled staff will be available here.

According to *CIC Staropolska* analysis, as well to construction branch enterprises opinions – lack of qualified / skilled workers may, in the nearest future, impede the realization of many investments.

The entrepreneurs of Świętokrzyskie region may obtain support from many institutions of the business environment. These are training and consulting centres: Chamber of Industry and Commerce *Staropolska* , the Employers' Association Forum in Kielce, Koneckie Association Supporting the Entrepreneurship, the Centre for Promotion and Support of Entrepreneurship in the Chamber of Craftsmen and Entrepreneurs, and the like. In year 2008 there were 34 business supporting institutions in Świętokrzyskie region, as well 4- loan and 1- guarantee funds.

The most important business function is fulfilled by Chamber of Industry and Commerce *Staropolska* (*CIC Staropolska*): trainings, legal and economic consultancies for entrepreneurs, supporting business cooperation, the EC centre for supporting the regional SMEs Enterprise Europe Network with its full range of services rendered to regional entrepreneurs and enterprises, construction cluster established in year 2010, ands many similar services connected with internationalization, foreign cooperation and promotion of our enterprises and industry in Poland and abroad.

*CIC Staropolska* is also a representative of entrepreneur interests in relation to regional and national authorities. *CIC Staropolska* also shapes the our region business competitiveness.

The business support institutions are shaping a very friendly economic climate for mutual cooperation of regional companies. Those institutions ( with leading *CIC Staropolska* ) are helpful to foreign investors both at initial stages of investment project preparation, and subsequently - while running or developing production and/or services.

Concerning the added value in our region construction sector, according to National Statistical Office, it is three times higher compared to average added value structure in Poland.

The świętokrzyskie province is one of the smallest and one of the most poorly economically developed provinces in Poland. It also belongs to the group of 20 the most poorly economically developed regions of the EU. Construction-housing sector is the most representative for świętokrzyskie province. It concerns historical, economic, resource and construction executive companies well known in the region and Poland. Our region has a strong position in construction market and it is foreseen as closely connected with development of construction sector in the EU and Poland. Construction companies from our region are well recognized and known in Polish and foreign countries markets ( some świętokrzyskie construction enterprises perform their construction works in Germany, Hungary, Switzerland...) . Attractive geographical location, good technical universities (of public and private type), well developed network of training / advisory institutions in construction sector, development of entrepreneurship incubators, technological areas, special economic zone in Starachowice in świętokrzyskie rgeion ( with attractive offer for investors) – those are the advantages of świętokrzyskie region. So there are the perspectives in the region for further development of its construction sector, mainly in housing buildings. Construction sector is a traditional branch, continuously developed and it is our regional specialty, strongly seated in that region in Poland.

So selection of construction-housing sector for the purpose of *JS Toolbox* Project in świętokrzyskie region has been correctly chosen as the most representative economic branch in our province.

## II. Construction sector in świętokrzyskie region

Świętokrzyskie province is of industrial and agricultural character. Industrial sector is located in its northern part, also based on mining and processing of local resources and minerals, especially those used in construction materials production.

In Świętokrzyskie region there are almost 100% of Polish gypsum stone and 42% of limestone deposits. More than 34% of Polish cement production volume comes from Świętokrzyskie region. That high share in the domestic production shows the strong position of our region in Poland's construction economy.

Almost half of Polish cement capacity comes from the cement plants located in Świętokrzyskie province.

The forests cover 27% of the province area. 67 natural reserves and 8 natural-landscape units are located in Świętokrzyskie province.

The main enterprises operating in Świętokrzyski region include, among other things:

* services and trade:	37.3 %
* real properties services:	11.8 %
* <b>construction – housing sector:</b>	<b>11.7 %</b>
* industrial processing:	9.4 %
* transport, storage and communication:	7.1%
* communal, social servicing and other:	6.5%

The main centres of industry in the region include:

* metal and machine industry:	Skarżysko-Kam., Starachowice, Kielce
* construction materials :	Kielce, Pińczów, Małogoszcz, Ożarów,
* ceramic industry:	Ćmielów
* steelworks and metal industry:	Ostrowiec Św., Starachowice, Skarżysko-Kam.

Targi Kielce S.A. (Kielce Trade Fairs Co.) has been operating in Kielce, acting in Polish fairs and exhibition market, with its share 19% - being the second trade-exhibition centre in Poland.

The “Starachowice” Special Economic Zone (SEZ) operates in our region. It covers the area of 566 hectares. An entrepreneur / enterprise which runs its activity in SEZ is entitled to get a

regional financial support as a result of spent investment outlays or creation and maintenance of new workplaces.

About 97% of the companies in Świętokrzyskie region come from private sector.

Almost half of Polish cement capacity comes from the cement plants located in Świętokrzyskie province.

Gypsum takes a prominent place in the list of the region deposits. It has been found in the Nida river region and is considered (due to the deposit volume and convenient conditions for deposit exploitation) to be the Poland's and European richest gypsum area. The Nida Valley yields 82% of the gypsum mining volume in Poland. Due to good chemical and physical properties, carbonate rock provides all-purpose materials for various industries. They are the most crucial for lime and cement industries as well for manufacturing of buildings and road broken aggregates. The Świętokrzyskie province provides over 50% of domestic mining yield of raw materials for lime industry and about 65% of carbonate road rocks and building stones. Big resources of various fossils made and make good background for development of construction materials production.

The leading cement and construction products plants in Świętokrzyskie province include:

- \* *Lafarge Cement S.A.*: 20% of cement total production in Poland; that cement plant is located in Małogoszcz, about 30 km from Kielce.
- \* *Grupa Ożarów*: 17% of cement total production in Poland; that cement plant (a member of Irish CRH Group) is located in Ożarów, about 80 km from Kielce.
- \* *Dyckerhoff Polska Sp. z o.o.*: 9% of cement total production in Poland (a member of Buzzi Unicem SpA – Italy), that cement plant is located in Nowiny, about 10 km from Kielce.
- \* *ZPW Trzuskawica S.A.*: a producer of construction materials, aggregate, with own limestone mine is located about 15 km from Kielce.
- \* *Lhoist Bukowa Sp. z o.o.*: a producer of the highest quality lime, aggregate, Construction materials and chemicals in Poland is located in Bukowa, about 45 km from Kielce.
- \* *Fabryka RIGIPS Stawiany*: a producer of cardboard-gypsum panels for building.

Świętokrzyskie region is also the seat of large number of the biggest construction companies in that province: (*Eiffage Construction*, *Condite*, *Exbud – Skanska S.A.*, *Dorbud S.A.*, *Unimax S.A.*, *Kartel*, *Trakt*, *Chemadin Export Sp. z o.o.*, *Fart Sp. z o.o.*, *Zakład Budowlano-*

*Montażowy ISKRA Sp. z o.o. – among other things*) which prepare and perform the construction projects in a świętokrzyskie region (mainly dwelling and office buildings), also in Poland and abroad. Some of świętokrzyskie construction companies perform construction works / projects in other EU countries and non-EU countries as well. Those companies perform construction works based on the newest technologies, materials.

Total volume of rock materials in the region's documented deposits amounts to 9.1 billion tons ( about 64% i.e. 277 deposits are unexploited).It means that there are great rock materials deposit reserves – to be used in construction sector). Within our province there is a network of sub-contractors, contractors and suppliers of construction / building ( mostly residential buildings) substances. The construction manufacturers are gathered in the Świętokrzysko-Podkarpacki Construction Cluster - which provides a favorable environment for development of the enterprises in construction sector.

Residential housing industry remains a social and economic problem in the region and in Poland as well. At present the number of Poles living in the overcrowded dwellings amounts to almost 12 millions. It shows the real urgent demand and need of development of construction-housing sector in Poland and in świętokrzyskie region.

The value of Polish construction market in year 2010 was 158.4 billion PLN, what is 3% more than in year 2009, thus showing its positively developing trend. Macroeconomic evaluation ( made by *Research and Analysis Dept. of Emerson Co.*) of Polish construction sector shows, that its condition is positive , compared to other economy sectors, and relatively stable. It also transfers to świętokrzyskie province – dominated by construction companies (SMEs mainly).

Many companies from świętokrzyskie region win the tenders for construction-housing projects and execution works in the region and Poland. They actively operate through their Chamber of Construction Engineers, also submitting their initiatives and proposals to improve construction market, meet the EU standards, etc. The representatives of construction sector closely cooperate with ministries and chiefs of Parliament Commissions in the area of construction sector ( construction law, spatial planning, public procurements, elimination of bureaucracy in investment process, cooperation of town-planners with construction project office and executive companies, etc...).



As it results from the above data (received by *CIC Staropolska* from Regional Office of Statistics in Kielce) – average employment rate in construction sector in Poland in year 2010 was as follows:::

Year :	Average employment rate in construction sector:	
	Poland	Świętokrzyskie region
2009	706,606	20,480
2010	674,414	19,832

So in year 2009 and 2010 average employment rate in construction sector of świętokrzyskie region was about 3% of national employment rate.

According to Central Office of Statistics data- year 2011 was characteristic for great planned investments in residential housing and service-office buildings in particular.

The numbers of building-construction permit decisions issued in year 2010 by regional construction authorities were as follows:

\* construction-housing objects ( **detached houses**) in świętokrzyskie region ( 2010 ) was:

3,246 building permit decisions

*what compared to year 2008 was **24.7% more.***

\* construction- office objects (**office-service buildings**) in świętokrzyskie region (2010)

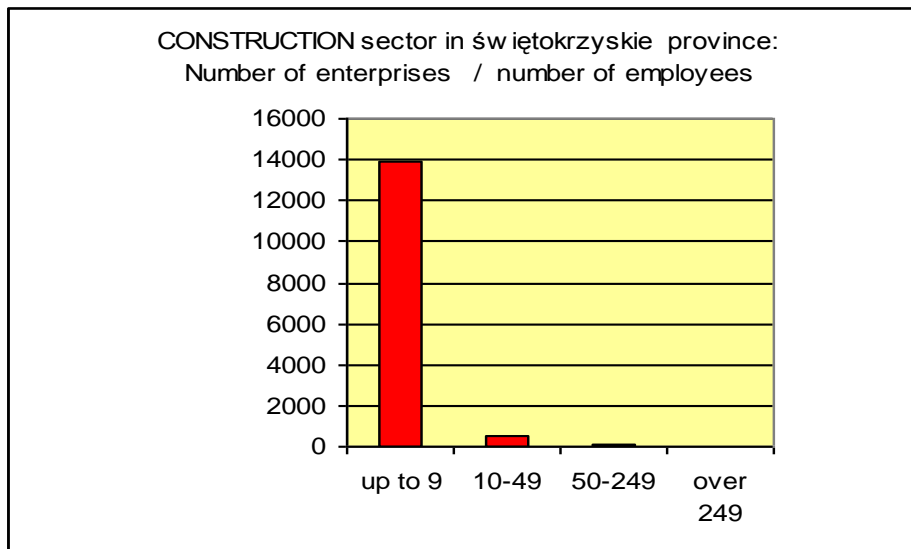
was: 1,149 building permit decisions

*what compared to year 2008 was **about 7% less.***

The above figures confirm, that construction-housing sector is a significantly developing construction branch in our region. It showed about one fourth increase of building permit decisions issued during a two year period – what means over 12% increase of issued building permit decisions per year.

That is a very positive and significant indicator confirming our assumptions of right selected construction-housing sector for our region.

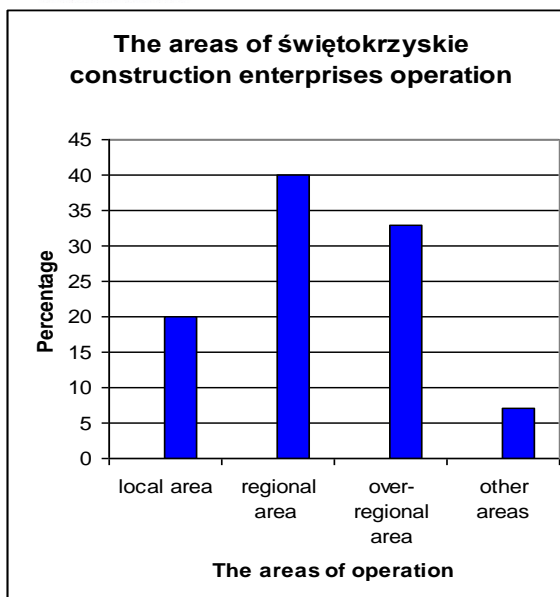




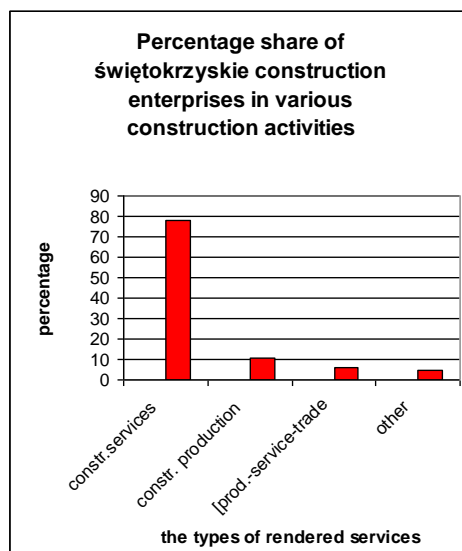
As we find from the statistical data, the biggest number of construction companies in świętokrzyskie region those are micro- enterprises ( up to 9 employees, 96% of regional construction companies) , next small enterprises (10-49 employees, 3.5% of regional construction companies) with small percentage share in the whole region enterprises. Third position is occupied by medium size enterprises (50-249 employees, 0.46 % of regional construction companies) and the last position concerns big construction enterprises ( over 249 employees, 0.05 % of regional construction companies).

So the main driving force in construction sector of our province comes from micro enterprises ( employment rate up to 9 employees, annual turnover lower than 2 million Euros, or total annual turnover lower than 2 million Euros).

The number of almost 14,000 construction enterprises in November 2011 was nearly the same as in November 2010 and nearly 4% greater than in November 2009. It shows, that construction sector in świętokrzyskie region is rather stable, with the tendency to its further development. That's a positive aspect, considering the fact of economic crisis in Europe transferred to Polish market and increase of construction materials prices. Construction enterprises in our region operate not only in our province, but also in other provinces of Poland and abroad as well. It means that our enterprises meet not only Polish standards, but also the EU and non-EU ( e.g. Swiss) standards in foreign countries. About 40% of świętokrzyskie region construction enterprises operate also outside our region / province. Those enterprises are also one-person firms operating in construction market as sub-contractors.



Most of our regional construction enterprises analyzed by CIC “Staropolska” operate in construction servicing sector, including mainly general construction works and finishing works (78%) . 11% of construction enterprises those are the producers of construction materials / elements. 6 % of our construction enterprises those are production-service-trade companies and about 5% of our construction companies- those are other companies (advisory, developers, designing firms etc...).



Individual investors operations resulted in increase of new dwelling houses by 56%. About 22% more dwelling houses were built within a period January-November 2011 compared to January-November 2010. Those data show that construction-housing market in świętokrzyskie region has been developing for last few years.

Our region is located in so called Eastern Poland region, consisting of 5 provinces in the south-eastern part of Poland. Those are the provinces of the poorest economic infrastructure in our country. Świętokrzyskie region is characterized by low level of road infrastructure ( no national and regional roads will be built in our region during the next coming years). In our region there are no significant companies operating in road construction sector. So the main domain of construction branch in our region is “construction-housing sector”. Housing construction companies are the most characteristic firms of construction sector in our province.

That is why our project focuses on: **Construction sector – housing and office-service buildings.**

### **III. Vocational education in świętokrzyskie region.**

The structure of students learning at secondary schools in Poland has been changing. Few years ago the percentage of students who attended the secondary schools: vocational, technical and general education type- was approximately the same. Since year 2009/2010 the system of secondary education has been dominated by general education secondary schools.

According to National Office of Statistics data the structure of the students learning at secondary schools is as follows:

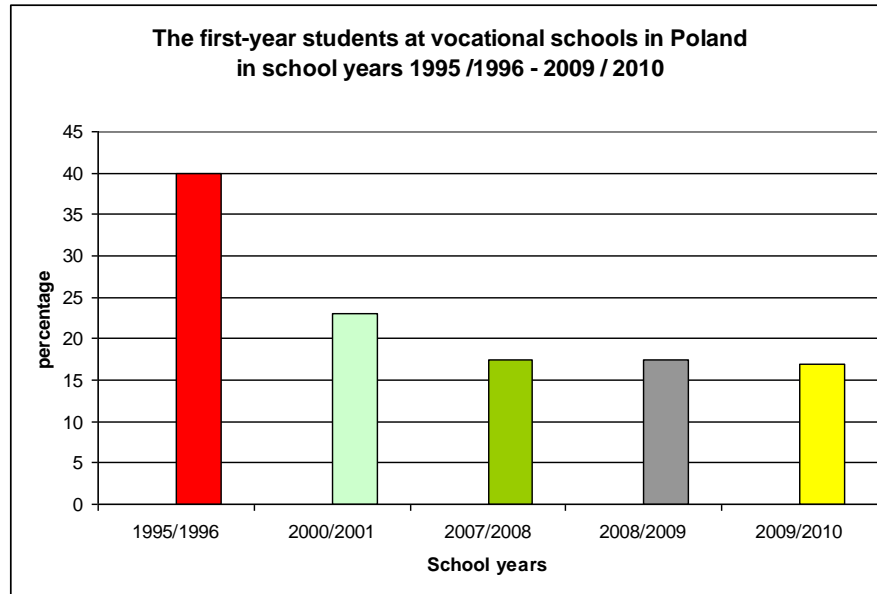
43.7 % learn at general education secondary schools;

26.4 % learns at technical secondary schools ;

15.0 % learn at basic vocational schools;

Other students learn at complementary general education schools and complementary technical secondary schools.

The table below shows the percentage share of the first year students learning at vocational schools in Poland in school from 1995 /1996 to 2009/2010 school years.

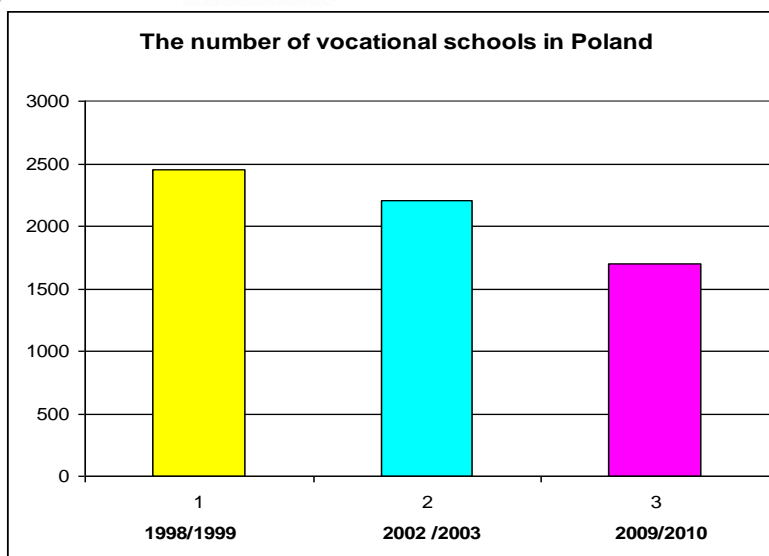


The following tables show the number of vocational schools in Poland and the number of vocational schools students in Poland in the same periods.

The biggest number of young people educated at general education secondary schools, the rest preferred learning at technical secondary schools. The least attractive schools for learning in Poland were the secondary vocational education schools. It resulted, among other things, from education reform made in Poland, as well from general trend for learning at general education schools.

Young people in Poland / świętokrzyskie region threatened with increasing unemployment level, continued and continue their education path to delay the moment of entering into the labour market.

There is also a tendency for learning at general education secondary school, what enables continuation of studying at universities. Less and less young people decided and decide to learn at vocational schools and on the contrary more and more people learn at general education secondary schools.

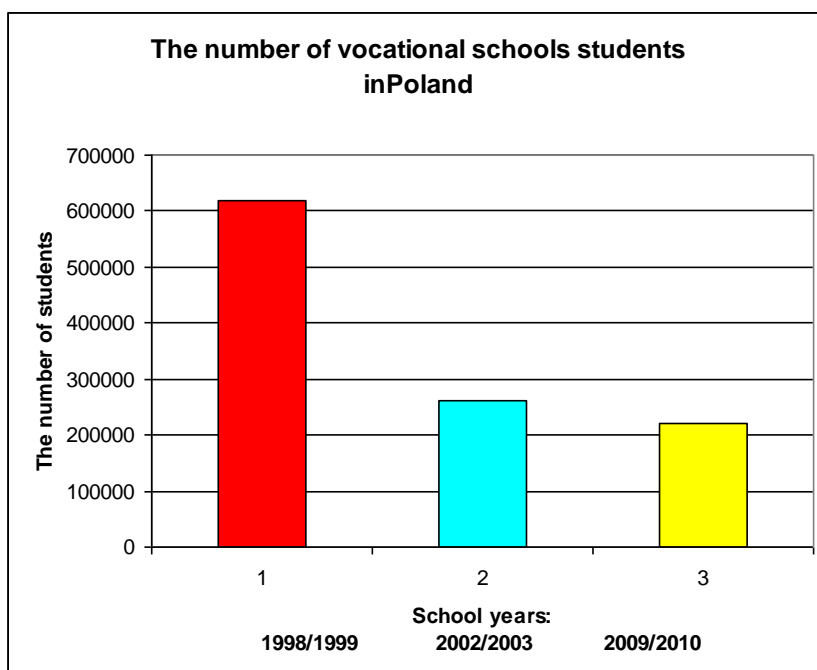


The picture above shows the tendency in decreasing of vocational schools number.

At present young people may learn in general education schools ( about 47 % of secondary school students), technical schools ( 32.5 %) and secondary vocational schools (20.5 %).

Good general education is an essential support in later performance of learnt profession, it is also the base to upgrade professional skills and qualifications and possible change of received qualification, according to the market needs. So the same catalogue of general education subjects, as for general education schools, was applied to secondary education schools. According to Polish education system – practical education in vocational schools should take not less that 60% of teaching lessons time ( Regulation of Minister of Education of 12.02.2002), but practically that percentage share is smaller. The success on labour market depends not only on possessed qualifications, but also on supplementary competences and skills : mathematics, IT, use of Polish and foreign language, understanding, ordering, evaluation of science values and their application in practice..

The competence of Minister of education is only to define, at the request of related ministers, the professions which may be the subjects of education of vocational schools. The statutory role of district self-government authorities defines continuous education and running local policy of labour market. Those self-government units, at district level, decide have the competences in definition of secondary schools network, including vocational schools. The same concerns the district labour offices with their consulting bodies called district employment boards. A director who manages the vocational school , while defining the professions to be educated at his school- is obliged to get an opinion from regional of district employment board.



All the above elements made that learning at secondary vocational school was not an attractive solution for young people. Soon it resulted in lack of vocationally skilled and educated people- needed by labour market.

In Poland – general education secondary school is a school where about 70% of Polish students prefer to learn after graduating their grammar school. At the same time graduation of technical school, or vocational school gives to the student the main benefit for him – i.e. profession to be used in present and future market, enabling them also smooth entering the labour market.

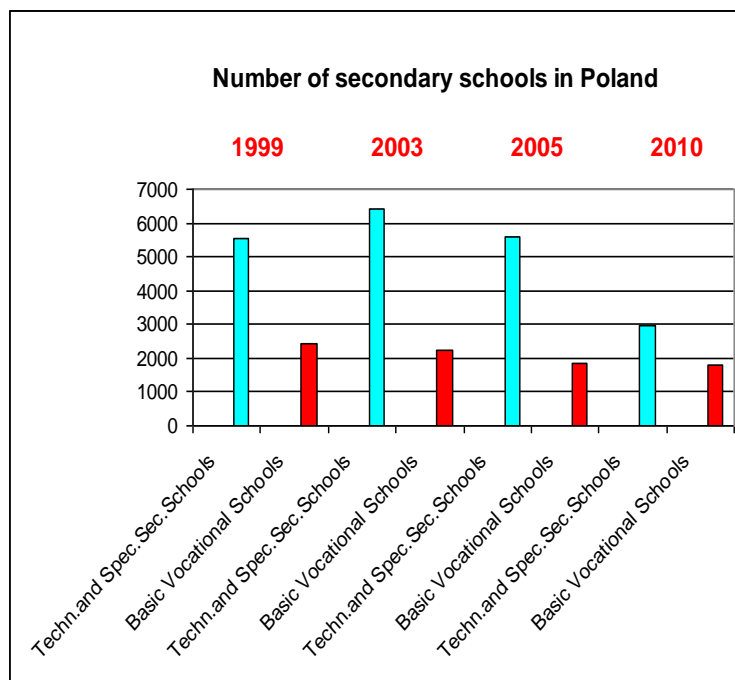
From the other side in the EU, Poland and świętokrzyskie region, the entrepreneurs find, that vocational education becomes more and more valuable product. Unfortunately every year less students decide to educate at vocational schools. According to statistics related to last 10 years, about 300,000 less students educate at vocational schools in Poland ( it concerns locksmiths, mechanics, hairdressers and the like..).

Polish Ministry of Education (ME) doesn't encourage young people to educate at vocational schools. According to labour market experts- Polish education market is not flexible enough. The existing education system is very rigid, it limits the opportunity to change educational way during education process.

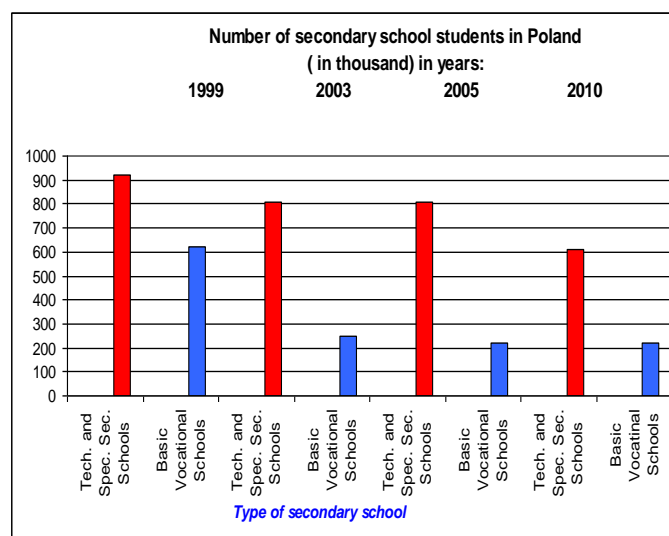
Only about 10% of secondary school students know what kind of work they are willing to perform. Thus there should be the possibility to change the scope of education during educational year.

In Poland, as well in świętokrzyskie region, average age of miners, metallurgists and other profession specialists is 50 years. Those people very soon will leave Polish / regional labour markets, becoming the pensioners. There will not be the professionals able to replace them- because nobody calculated how many new experts should be educated there.

The table below shows the number of secondary schools in Poland for years 1999 – 2010. It shows permanent decreasing number of basic vocational schools.



The number of secondary school students in Poland compared to the type of secondary school is shown in the table below. It confirms, that the number of vocational schools in Poland decreased about three times during last 11 years.

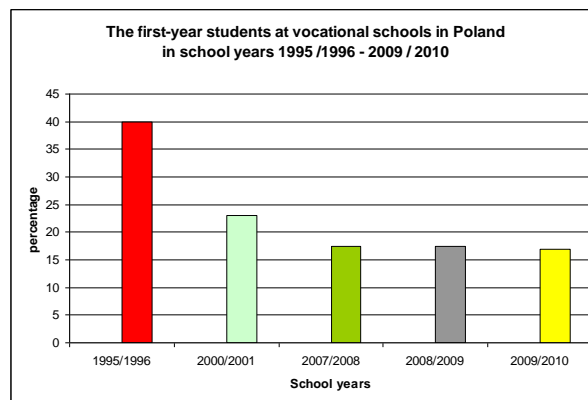


In świętokrzyskie region there are:

- **87** technical schools ( where 22,142 students are taught);
- **68** basic vocational schools ( where 7,133 students are taught);
- **126** general education secondary schools ( where 25,439 students are taught);

Only few vocational schools in our province cooperate with the regional entrepreneurs in the area of arrangement of practices / apprenticeships. Information collected by vocational schools and related to labour market don't include the trends and forecasting how labour market will change in the future. There is lack of continuous cooperation of VET branch sector with regional business institutions.

In many schools there are some barriers connected with adaptation of education directions towards the labour market needs. It mostly concerns lack of interest from the candidates , lack of qualified and skilled teaching staff.



#### **IV. External and internal circumstances impacting on future needs of construction market in świętokrzyskie region:**

##### **IV.1 The EU technological requirements, recommendations and actions for implementing of pro-ecological, innovative, energy saving solutions and technologies connected with construction sector.**

The purpose of *JS Toolbox Project* is to find the solutions: how to improve the level of vocational education in construction market, provide information what vocational skills are / will be demanded by that market in the nearest future, how to face the construction market



demands to meet the EU requirements and the *EU strategy by 2020*. The project describes the present and future development in construction sector, also concerning the proposals for future needs in vocational education. Considering świętokrzyskie region in Poland, the Project defines what vocational skills and competences in construction sector will be demanded in that specific region of Poland.

The European Parliament, in November 2010 adopted the resolution titled „*Towards new energetic strategy for Europe 2011–2020*” concerning the power supply requirements for coming years.

The adopted resolution of the European Parliament treats the energetic capacity as a key priority in the Europe energetic strategy for years 2011-2020.

The European Parliament priorities include, among other things: full implementation of current energetic law, promotion of **energy-saving projects** and reinforcement of external energetic policy of the European Union.

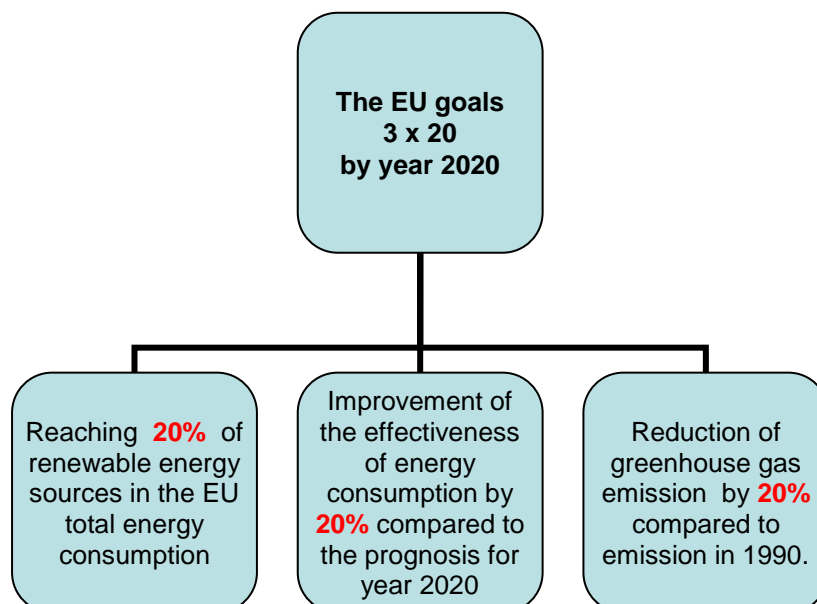
The share of construction sector in the EU GDP is about 15%. The European buildings consume even 42% of energy and produce 35% of greenhouse gases in the whole EU.

The EC proposes to apply the regulations, uniform methods of standardization, and forcing the “ecological aspects” in relation to state, designing and construction institutions. also in the offers of public procurement tenders in construction sector.

The present challenge of the European Union is, among other things, the policy of “*three twenties*” – i.e.:

- \* reduction of greenhouse gas emission by **20%**,
- \* improvement of the effectiveness of energy consumption by **20%**,
- \* reaching **20%** of renewable energy sources in energy consumption.

It also concerns increasing to **10%** of bio-fuels share in road transport.



That resolution will impact on construction sector in a very near future. All the mentioned above elements of the European Parliament resolution will have to be directly applied in construction sector. It will require to implement the *3x20 principle* in saving primary energy consumption by year 2020.

Energy efficiency became a central point to make the economy more competitive, also resulting in global and individual aspects ( lowering of people's energy consumption bills amount). More financing, awareness – raising, **qualified workforce**, development of energy efficient technologies and innovation, also in construction sector, will facilitate a higher uptake of energy efficiency. Without significant energy savings, reduction in energy consumption intensity, implementation of sustainable low-carbon economy - it will not be impossible to achieve the goals of *the EU strategy by 2020*. Construction market plays an important role in performance of the EU energy saving policy. It also concerns świętokrzyskie region construction-housing market.

So the main directions of Polish power engineering policy will be, among other things:

- improvement of power engineering effectiveness;
- limitation of power engineering impact on the environment;
- *prompt development of energy saving and passive buildings*,
- implementing of new studies, technologies, materials, machinery in construction sector;

According to the analysis of Polish construction sector – the level of power consumption in household buildings is 68% for heating purposes only. That factor is much higher than in the EU countries.

Special attention should be paid to the sectors with the largest potential to make energy efficiency gains- namely **building** and transport sector.

According to the EC communication of *10.11.2010 COM (2010) 639 final* the construction industry sector will have to be more efficient , directed to application of energy saving activities and particular attention will have to be emphasized on SMEs which perform the building / construction projects and works.

Measures need to be developed to speed up significantly the rate of refurbishment using energy-saving products and technologies. Regarding the residential and office construction sector it will be required to improve the energy efficiency and autonomy of the buildings.

The new EU energy strategy will require to take the significant efforts also in construction sector innovations and investment, impacting on sustainable energy future. For example, in construction sector, by saving energy in designing and residential housing construction works, reducing wastage and switching to low-carbon technologies and fuels (residential housing heating systems), upgrading the skills of engaged workers –the realization of the EU strategy 2020 will be assured. Those actions will give positive and financial saving results for the building objects owners and individuals. Reduction of energy needs is a key priority and requires reinforced policies at all the levels. As a proof of it the EC will start to draw the consequences and punishment of the countries which will not observe the EU energy strategy 2020 regulations.

The EU strategy 2020 is the first step of its long-term policy, where the EU should be prepared for the 2050 year objective of secure, competitive and low-carbon energy system. The EU energy strategy 2020 is included in a complete road map for 2050, which will set the measures in a long term and consider further and complementary steps.

Apart from obvious importance of energy saving, efficiency and sustainability policy –resulted from the EU energetic policy 2020, individuals and residential housing owners will also find positive results of that policy in lowering energy bills and having their flats / houses / offices as friendly to environment.

Most of the above requirements transfers directly to existing and future construction-housing market in świętokrzyskie region.

#### **IV.2 National and regional circumstances impacting on regional construction market**

Polish government is also obliged to operate according to the European Parliament resolution of November 2010 directed towards new Energy Strategy for Europe 2011-2020. That is a key priority for the Europe energy strategy to be observed by the member countries. The priorities of that resolution include, among other things, full implementation of the energy plan, promotion of the projects re. energy supply and use saving, reinforcement of the EU external power supply system.

Energy-saving aspects in construction sector have to be included at site planning, designing, construction and maintenance works. All the design offices and construction companies will have to apply the energy-saving solutions and principles in the newly constructed housing and office buildings as well. Basic directions of Polish energy policy include:

- improvement of energetic / energy efficiency,
- increase of safety of energy consumption ,
- development and use of renewable energy sources, including bio-fuels as well,
- development of competitive markets for energy supply,
- limitation of energy impact on the environment.

The principles of the EU Parliament have been transferred to the Act of Polish Energy Law. which is an obligatory document in Poland.

The Articles no. 12, 14 and 19 of that Act state : “ *the purposes of Polish power / energy system, elaborated according to the policy of sustainable principle of development- thus assuring power supply safety in Poland, environment protection, increase of economy competitiveness and development of renewable sources of energy use. Improvement of application of power supply systems to be efficient*”. That Act also states the demand of practical use ( including construction-housing sector), of Polish energetic policy in practice. The Act about energetic efficiency ( adopted by Polish Parliament in year 2011) provides the mandatory reduction of energy by 9%, compared to years 2001-2005. Since year 2018 it will be demanded to construct/built the *passive buildings* . It means that energy-saving, passive building objects will shape future construction-housing sector also in Poland. New Polish law will impact on opening of the market for new professions in construction sector and for those construction companies which will include, in their works, execution of passive building objects. The EU and Poland move towards implementing of the renewable energy solutions. Each of the EU countries is obliged individually to change its construction an power supply system according to the EU Parliament demands. Our country becomes a very attractive partner for “ green” investments ( also in construction sector). Many construction, pro-ecological and energy-saving investments in Poland are supported by co-financing from the EU funds- oriented to application of energy saving, pro-ecological systems and materials in construction sector. Polish construction companies have been using the supporting co-financing form the EU budget (Operational Programs) , National Economy Bank , The Fund of Environment protection, and the like. No matter how fast the EU will leave the economic crisis, the green-energy and eco- solutions will be applied and developed also in Poland.

Application of the energy renewable sources is more popular by the Poles, than dangerous- in citizens opinion- nuclear power plants, or gas supply systems.

Polish policy and actions strictly relate to Energy Strategy for Europe 2011-2020 include implementing of modern technologies in construction sector, execution of energy-saving and passive buildings, use renewable sources of energy. That will require to have skilled and educated workers / employees who will perform the required works also in construction-housing sector.

It also relates to application of the EU Parliament demands in: preparation and elaboration of site development plans, application of the newest pro-ecological technologies , cooperation with technical universities , designing of housing estates with use of energy produced by the nature, saving of water, performance of building constructions ( passive type in particular, selection of pro-ecological construction materials, devices and technologies, execution and supervision of construction works performed acc. to National Power Supply Strategy principles, application and use of modern standards and Safety and Hygiene of Works principles, implementing of the above principles in the existing construction objects- where it is possible.

## **V. External and internal circumstances impacting on the future needs of vocational education development in świętokrzyskie region**

The European Commission and the Committee of the Regions issued, on 26.11.2010 (COM(2010)682 final/2) the statement – “*An Agenda for new skills for new jobs: a European contribution towards full employment*”. That Agenda is designed for better skills upgrading, anticipation and matching. The initiative is ongoing and will be continued in the future.

That Agenda launched in 2010, is a part of the EU's overall strategy Europe 2020 promoting smart and sustainable growth in the next 10 years and beyond. It also contributes the EU's target to have at least 20 million fewer people in or at risk of poverty and social exclusion by year 2020.

The economic crisis in Europe brought the employment rate down to 69%. It has been assumed that labour market will stabilize achieving employment rate of 75% by 2020.

A skilled workforce is an essential asset to develop competitive, sustainable and innovative economy in line with *Europe 2020* goals.

The EU can meet those challenges and raise the employment rates, focusing on four key priorities:

- better functioning of labour markets;
- **more skilled workforce;**
- better job quality and working conditions;
- stronger policies to promote job creation and demand for labour.

The economic crisis in Europe has highlighted the urgent need to pursue labour market reforms. The unemployment rate for young people ( up to 25 years) has risen by 5.8% percentage points since March 2008. Even in the EU member states additional incentives for training, resulted in that not enough potential beneficiaries took-up the offer to re-train.

One of the most essential elements in training is assurance of comprehensive lifelong learning. It is important to improve the access to lifelong learning : to help people move to high-value added sectors.

It is also an essential matter to adopt the targeted approaches for more vulnerable workers, particularly those low skilled, unemployed, younger and older workers, etc...Public Employment Services (PES) institutions should provide career guidance and well-targeted and adapted training and work-experience programs. Specific priority should also be given to:

- the skills upgrading of older workers who are vulnerable to economic restructuring;
- re-skilling of parents returning to work after a period of taking care of family dependants;
- re-skilling of blue-collar workers with a view to a transition towards green-collar jobs.

It is also essential matter to enhance a stakeholder involvement in social dialogue on the implementation of lifelong learning. Partnership at regional and local levels between public services, education and training providers and employers can effectively identify training needs, improve the relevance of education and training, and facilitate individual's access to further education and training. It mainly concerns vocational education training (VET).

Long-term prospects emphasize the importance of the employees skills. The number of jobs occupied by highly-qualified people are expected to rise by 16 million between now and year 2020 in the EU, while those held by low-skilled workers will decline by around 12 million.

Too many people do not have the competences needed to succeed in the labour market. It mainly concerns lack of vocational education level and practical application of vocational skills and abilities. Moreover the adults of low vocational educational level are seven times less to be involved in continuing education and training than those with high attainment levels, and as a result they face the increasing difficulty in adapting to newly-emerging and evolving skills needs.

Significant investments in “green ” skills need to be made to ensure Europe target – of having 3 million green collar workers by year 2020.

The EU member states actions to raise the skill levels, connected with new technologies, green economy development including various sectors ( construction-housing sector as well), must be complemented by the EU actions, meeting the national / regional demands. In our region it will concern mainly construction-housing sector – which is the most representative in świętokrzyskie region/ province in Poland.

Member States should develop their labour market intelligence on current and future skills needs. The analyses will help to shape the qualification standards and adapt training system to labour market needs. Actions should be focused on vocational education level mainly.

However there is a wide scope to further development of existing and forward-looking labour market tools at Member States, with consideration of regional circumstances at present and in the near future.

Education and training systems – mainly Vocational Education training (VET) will have to ensure that young people, graduating vocational schools, will possess the skills and competences needed to make successful transition to employment in conformity with the market needs.

Good analysis of a dominating and specific sector in a given region will support the vocational training area. That will require better cooperation between the worlds of: work, education and training and increased transparency in the labour market, beyond traditional approaches which measure skills only through formal qualifications.

The shift towards competence and skills- based approaches is already leading to a significant change in vocational education system, labour markets and other interactions. This in turn has important implications for:

- the work of employment services in the area of skills assessment,
- profiling process,
- training delivery,
- cooperation with training providers,
- career guidance, etc...

Counseling, incentives and assistance to companies, including SMEs, is also essential to help them to develop and make the best use of demanded vocational competences in the work place. Employers should be encouraged to co-invest and participate in the activities of education and training institutions, particularly vocational education and training; these



partnerships can develop and update skills profiles, multidisciplinary curricula and qualifications and facilitate the provision of work-based learning.

The EU Commission is going to issue in year 2012 “ *the EU skills Panorama*” to improve transparency for job seekers, workers, companies and/ or public institutions.

High quality of work goes hand in hand with high employment level in the market. This is because the working environment plays a crucial role in enhancing the potential of workforce and is a leading competitiveness factor.

During the last decade job satisfaction increased noticeably. Due to the economic crisis in the EU, more jobs have been exposed to competitive pressures and deteriorating working conditions.

Policies designed to promote job creation must take into account the important contribution of small and medium-sized enterprises (SMEs). Over 99% of business enterprises in the EU are the SMEs, which provide two-thirds of all private sector jobs.

Economic growth remains the main lever to job creation.

By increasing internal flexicurity, the Member States avoid the loss of firm-specific human capital and re-hiring costs. Active labour market measures increase training and work experience programs.

The economic crisis has highlighted the urgent need to pursue labour market reforms. The four components of flexicurity:

- flexible and reliable contractual agreements,
- active labour market policies,
- life-long learning
- modern social security systems

must be strengthened to ensure, that, in post-crisis contexts, countries focus on the most – effective reforms, while providing better flexibility and security.

One of the EC key policy priorities is: *improving access to lifelong learning*, to help people to move to high-value added sectors. More flexible learning pathways can facilitate transitions between the phases of work and learning, including module learning programs. These pathways should also allow for validation of non-formal and formal learning and be based on learning outcomes, as well as the integration of learning and career guidance system.

The EU countries should also provide the right mix of skills for the employees in the market.

Irrespective of age, gender, socio-economic background, ethnicity or disability, all the EU citizens should have the opportunity to acquire and develop the mix of knowledge, skills and



aptitudes they need to succeed in the labour market. It also concerns construction market – a leading branch of świętokrzyskie region.

Skills upgrading is very important for Europe short-term recovery and long-term growth and productivity.

It is possible for European labour markets to simultaneously face high unemployment levels and sizeable number of unfilled jobs, where there is inefficient matching between vacancies and job seekers.

The transition towards a low – carbon economy, will also have important impact on employment , specially in energy and construction-housing industry. According to International Labour Organizatoin, the global market for ecological services should double and reach 2,740 billion dollars in year 2020.

It is estimated that the EU working population(15-64 years) will peak in 2012, and then start shrinking.

Several collateral factors will simulate demand for better and adapted skills connected with transition towards low-carbon economy.

Key competences refer to knowledge, skills and attitude that young people should develop during their initial education and training, and that adults should be able to learn and maintain through lifelong learning.

In the services sector, there is a clear tendency towards the broadening of the required skills at all to occupational levels.

This reflects the growing demand from employer for transversal key competences, such as problem solving and analytical vocational skills, self-management and communication skills. New technologies and development in work organization on vocational level seem to result in important job expansion.

The project treats about the forecasting system and tests it in one particular job area agreed upon by the project Partners. That area concerns construction-housing sector related to vocational education level.

The trends for development in construction market in the EU show increase of employees from 14 million to 16 million. It will be closely connected with employment increase especially in energy, ecology and construction sector. It means that at the regional level those forecasts will be similar.

Several correlated factors will stimulate demand for better and adapted skills: changes in construction sector, low carbon economy, application of new technologies, technological changes and skills upgrading.

The next decade will force increased demand for high qualified, skilled and adaptable workforce and more skills-dependent jobs. It will mainly concern vocational education and skills.

Most jobs in non-manual skilled occupations will require highly qualified workers; workers with medium education attainment will increasingly fill skilled occupations. Since overall education rates increase at a faster rate than labour market changes, only half of elementary jobs will be held by workers with low educational attainment.

**According to the report of the EC:** at present one of three European employees in production age is poorly qualified, has no required qualifications- what result in probability of employment decrease by 40% compared to the employees with medium level qualifications.

The employment ratio for highly skilled workers in the whole EU is 84%, while for those poorly qualified workers that ratio is 49%.

The probability of closing the companies engaged in training and upgrading of their workers education is 2.5 times lower compared to those which don't undertake such initiatives.

The EC report is directed to the EU and national decision makers, professional representatives, the units responsible for training and education.

It is required to forecast better further needs in workers qualifications. The share of well qualified workers is still too low in the EU. Almost one third of the EU citizens, in production age, has no formal qualifications and only one fourth has sufficient qualifications.

Coming years will bring about 80 million workplaces. Nearly 7 million of workers will have to be highly qualified.

The EU forecasting for jobs is as follows: in years 2020 the market demand for employees will be 17 million (low level education), 5 million (medium level education) and 20 million (high level education).

In Poland there are rather no properly educated teachers who should educate potential employees. It concerns modern construction sector and green energy sector trainers.

The EC assumes that it will be necessary to train new vocational trainers, who will have to implement and develop the policy and strategy of jobs forecast.

The purpose of JS TOOLBOX project is to find the best solution how to modernize, adapt and transfer it to education and employment policy. It is necessary to consider a program for

future job needs, treating how to improve new skill education. A strategy plan should be a useful tool in that matter. The JS TOOLBOX project treats what future jobs will be required by construction-housing market in the nearest future (3-5 years). Business and education institutions, as well universities and government / non-government authorities should be involved in that process. JS TOOLBOX project Partner -Chamber of Industry and Commerce “Staropolska”, should focus on regional level, searching for the needs of regional construction labour market, including the analysis of that market and proposals for programs to be implemented there. Construction-housing market, in general, will focus mainly on improvement of education at low and medium level- with particular attention paid to vocational education.

The EC has published a leading initiative “ *The plan of for new skills and employment*” which focuses on 13 key actions connected with the reform of labour market., modernization of skills and its adaptation to the labour market needs, thus enabling the change of work place, improvement of labour condition, quality of work and creation of new work places.

Technological progress and new methods of work organization result in changes in demand for qualifications. The individual learning process doesn't stop after graduation of the last year of school education, but continues for a lifetime. As a result, it becomes possible to change, broaden and raise the qualifications acquired in formal, non-formal and informal education. In addition it is possible to acquire qualifications in the modules in schools and out-of school system, also depending on the needs and expectations of a specific employer. The notion “ occupation” is being replaced by a set of qualifications related to a given task or function of an employee.

In Poland, in formal education in the school system up to the upper secondary level, the point of departure are the core curricula of general and vocational education ( a responsibility of Ministry of Education in Poland). At present in Poland, there are 117 professions at technical level and 85 at basic vocational level. The total number of occupation is: 202. Classification of professions is coordinated by Ministry of Education.

Poland has an imperfect system for forecasting labour market needs, because its economy is dominated by small and medium-sized enterprises, which are usually unable to define clearly their needs in a time horizon longer than 6 months. The key to improvement of the level of harmonization of vocational education and the labour markets is close cooperation with the enterprises and collaboration of the interested parties aimed at reducing the degree of uncertainty on the labour market.

The *Education for Sustainable Development Strategy* adopted by the Ministry of the Environment in year 2008 provides an incentive to greening of the economy. On the basis of this policy and strategy, the vocational education and training system may develop its own offer of education services. Environment education in the formal education system is provided in Poland also in vocational secondary schools.

In Poland the supply of training services on the market is not well defined, what results in the problems of monitoring the quality of courses, ensuring effective spending of training budgets.

The quality of vocational education, including key competences, should be programmed to support the development of skills and attitudes necessary for broad-profile vocational education as an asset in looking for a job on the Polish and European labour market.

European Qualification Frameworks (EQF) entered into force in April 2008. EQF is an instrument to compare the qualifications granted in various EU countries. According to Polish Qualification Framework (PQF) have been established. Both frameworks (EQF and PQF) are divided into 8 levels. General education is qualified at the levels 1-4. Graduation of vocational education school is classified at level 3. The requirements related to vocational skills appear very quickly. It is and will be demanded to react promptly to new skills and professions. PQF will assure prompt inclusion of professional demands into a formal qualification register form. A given profession may consist of partial qualifications (what will also include new qualifications at the same level). The ability of confirmation of partial qualifications, creating full professional qualification at a given level will support the principle of long-life learning. So everybody will be able to collect various diplomas, certificates, which may be evaluated as qualifications connected with a possessed profession, thus it will be easier to get new professions by complementing of lacking qualifications. Multiple change of qualifications to another profession will consist in getting the qualifications at the same level. PQF enables confirmation of the competences achieved on out-formal ways. There always will be the professions requiring vocational practice – because not only knowledge and personal competences, but also practical skills will be required at a defined level of qualifications.

So the level 3 of PQF (designed for vocational education) includes:

- a) **knowledge** (knowledge of the facts, principles, processes and general definitions in a given scope of work or science);
- b) **skills** (the set of cognitive and practical skills required to execute the tasks, through the selection and application of basic methods, tools and information);

c) **competences** ( taking the responsibility for execution of tasks at work or science, adaptation of own behavior to circumstances in the problems solutions).

So EQF and PQF focus their particular efforts on the aspects what a qualified person really knows and is able to do.

The regional document “ *The strategy of świętokrzyskie province development by year 2020*” issued by the Marshall Office of świętokrzyskie province is a document which defines the plans and is a superior long-term strategic document of social – economic development of our region. That document also includes the external and internal conditions, states the perspectives, realization of strategic goals for our region development. The guidelines, requirements of the EU, EC regarding energy saving and pro-ecological activities are also included there. So we will have to observe the EU, EC and regional regulations, also in the area of construction-housing sector.

Regional Operational Program for Świętokrzyskie Province development is the next document to be observed in our region. It also treats about improvement of creation of competitive economy ( also in construction sector) and generation of new work places, improvement of environment state

Correct cooperation of business sector with VET providers and institutions is a matter of the highest priority. Construction companies /enterprises should be the place of practical implementing of skills gained during vocational education ( technical vocational practices, workshops, apprenticeships). Vocational schools in our region are not well equipped with the required equipment, technological units and wide construction background facilities as the enterprises have for their use. Unfortunately construction enterprises very rarely want to cooperate with vocational schools- what is confirmed in our investigations results, data shown in this projects. It impacts negatively on poorer practical vocational education level in that sector, operation of VET institutions not strictly according to contemporary and future needs of construction market, lack of right analysis of that market and finally lack of well educated, skilled and well experienced gradulators who should work in that sector. So this is the matter of highest priority to assure right cooperation of business sector with vocational education units and institutions involved in construction sector development and operation.

## **VI. Existing professions and competences in construction-housing market** **in świętokrzyskie region:**

Chamber of Industry and Commerce “Staropolska” (*CIC “Staropolska”*) made the analysis in construction-housing branch concerning the companies from our region and construction enterprises which are the members of *CIC “Staropolska”*. According to that analysis there is lack of qualified staff in that branch. The research works of *CIC “Staropolska”* were made with a group of companies representing the entities operating in construction market, as well with Educational and labour Office institutions from our region.

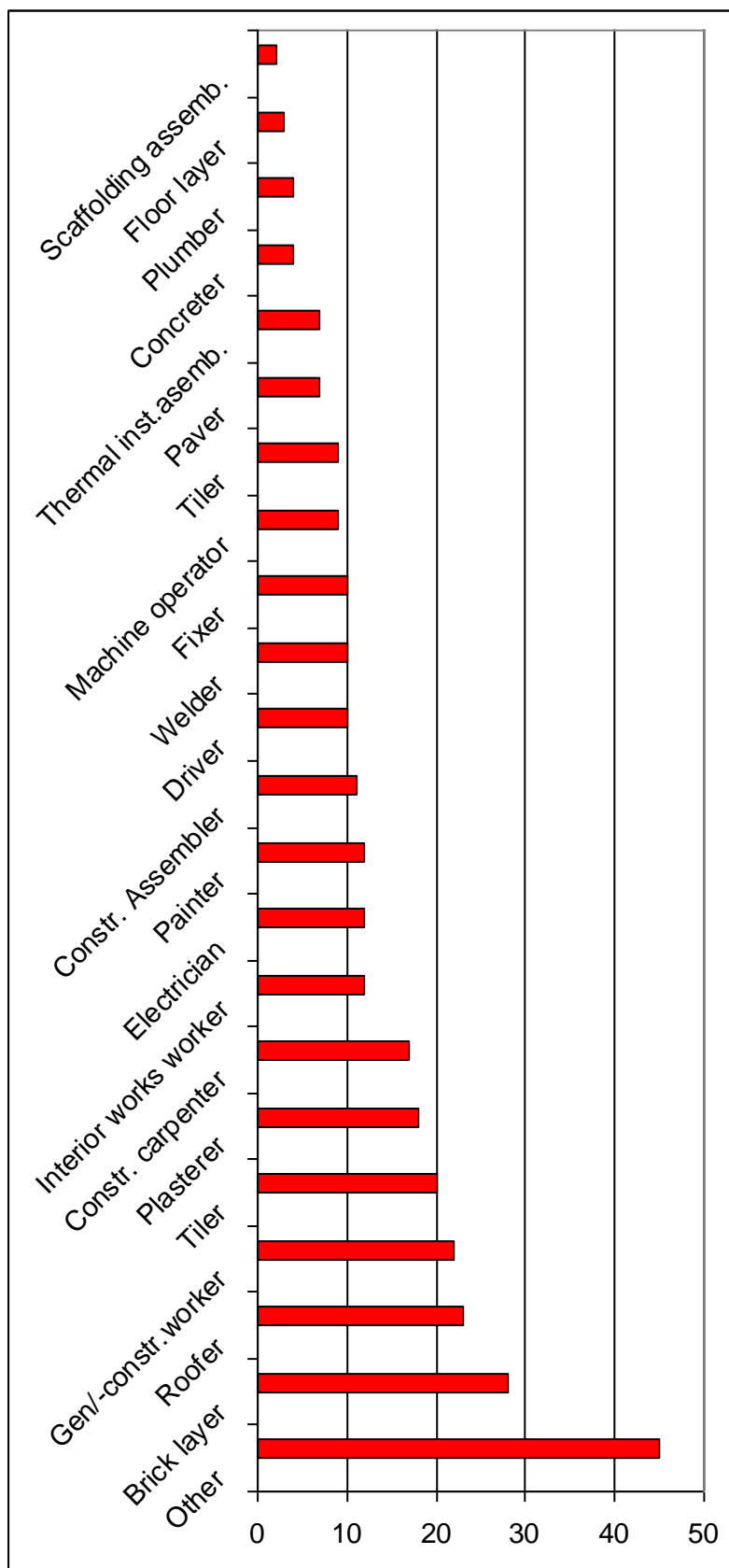
About 62% of *CIC “Staropolska”* respondents don’t send the newly employed workers to supplementary training courses. There is lack of good quality trainings for new construction-housing branch, long-term trainings supported by full practical workshop base.

Current vocational education system doesn’t assure right updating of courses, development of skills and trainings courses according to current and future market needs in construction-housing market.

The graph shown below is the result of *CIC Staropolska* analysis made with use of responses received from many construction-housing companies in świętokrzyskie region. The companies from świętokrzyskie region are not obliged to be the *CIC Staropolska* members. Membership of the enterprises in *CIC Staropolska* is not obligatory (as in Germany, Austria, the Netherlands, Spain, etc.). Membership in *CIC Staropolska* is voluntary and depends on a company’s decision only. Thus to collect the data to this project we had to spend much longer time to find, get the enterprises / institutions relevant to this project, collect and process the data received from them. The graph below presents the numbers of construction-housing companies, which are going to increase their employment level in over a dozen professions.

The biggest current demand in construction-housing market concerns professional specialists, who should have the priority in their access to education, special skills, supplementary education and professional development. The present demands of the entrepreneurs don’t include future energy-saving, passive construction-housing professionals (at vocational education level) – who will be demanded by future construction market. The presented graph shows the list of professions demanded by construction-housing companies at present. It doesn’t include the future demands of the employers in that sector. The numbers shown in X-axis show the number of construction-housing enterprises engaged in our research works, which presented their priorities in demanding of construction-housing sector specialists in świętokrzyskie region.

**Main professions in present construction-housing sector of świętokrzyskie region**  
( X – axis relates to the number of enterprises evaluating the demand for a given profession )



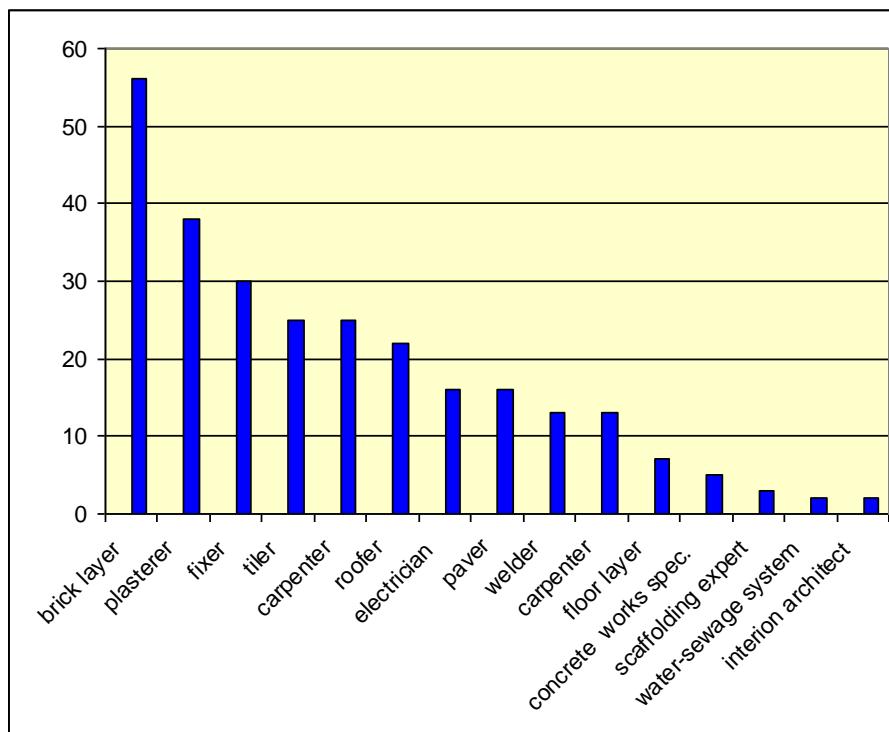


As we find from the above scheme – the most popular professions in construction market in świętokrzyskie region concern traditional range of works. At present the regional employers are interested in employment of the workers specialized in basic areas of construction-housing sector and those who are the finishing works experts. All the respondents ( who participated in our questionnaire action) want to employ young people ready to perform practically construction works.

About 62% of *CIC "Staropolska"* respondents don't send the newly employed workers to supplementary training courses. Thus such young workers have no chances to improve their competences or upgrade their skills. Moreover there is lack of good quality trainings for construction branch, long-tem trainings with full practical workshop base, use of good practice. Present vocational education system doesn't offer information about the need of such trainings and courses related to the employers and employed staff as well.

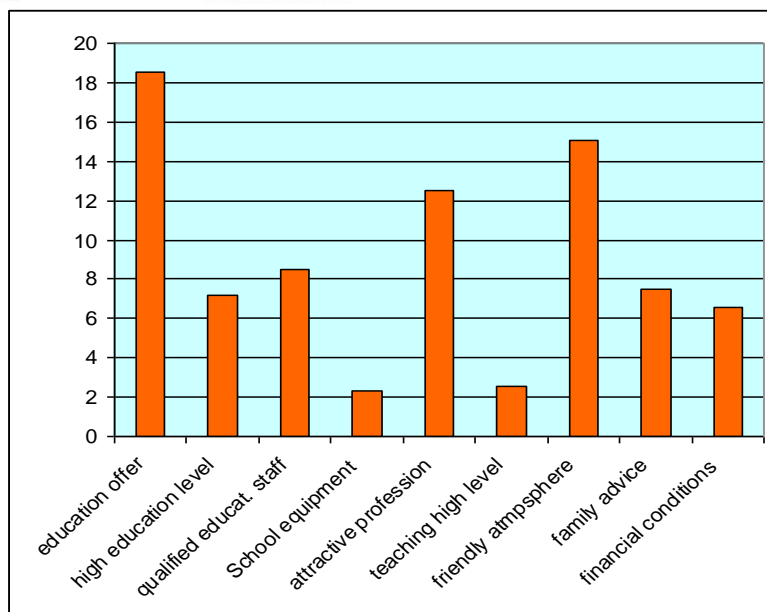
Here below we show the present state of professions with lack of vocational trainings – in opinion of vocational schools graduates and newly employed workers.

#### Professions with lack of vocational trainings:



The decision about selection, by young people, of vocational school for learning depends on many factors. In świętokrzyskie region, the decision of future students about choosing of vocational school depends on the following aspects.

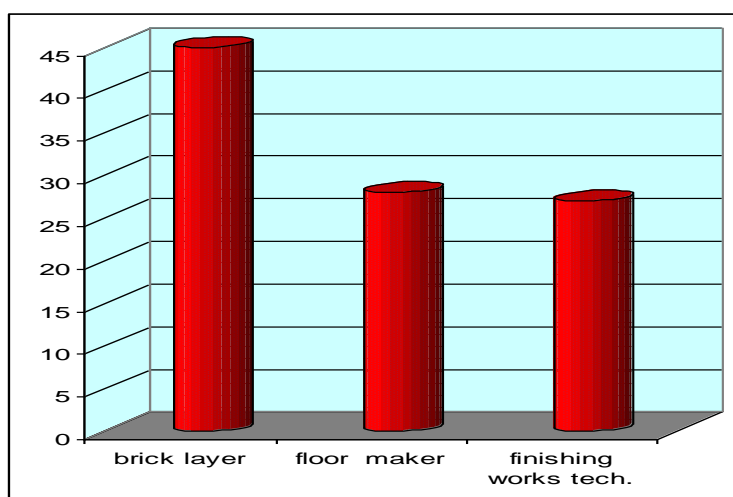




As we find, the most attractive criteria of vocational school selection are:

- educational offer;
- opportunity to get attractive profession;
- friendly atmosphere in a given school

According to *CIC Staropolska* analysis- the students of vocational schools in our region selected three main groups of professions, the most popular in construction (housing) sector at present:

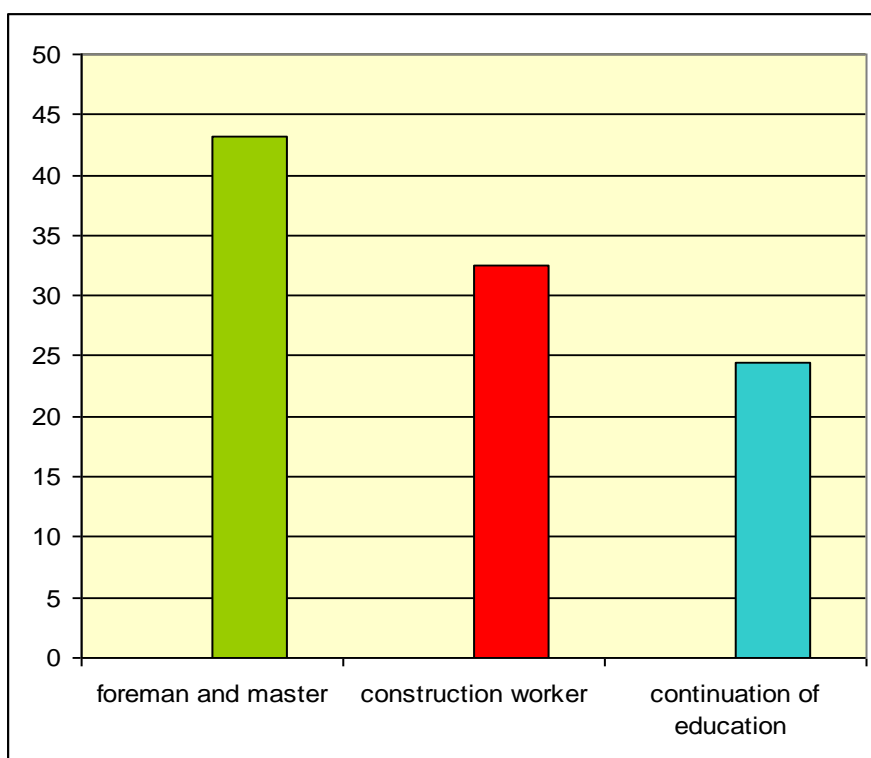


The above professions are of traditional character, there are no modern technologies concerning energy saving and passive constructions.

Almost half of responders from vocational education schools educate in a brick layer profession. In their opinion - they should be employed in construction sector after termination of those schools.

The students are interested in getting the additional skills during their education in vocational education school. All the vocational education school graduates want to work directly in construction-housing sites. About 30% of responders declare their willing to work as qualified construction worker.

The students after termination of vocational education school would like to work as:



Construction professions, according to the responders opinions, are attractive – so that is the reason why young people chose the construction vocational secondary schools for their education.

From the other side, considering the information received from investigated enterprises, the problems which appear on construction market, transfer to employment of young people. It may result in problems connected with finding of work by construction vocational school graduates.

The respondents ( entrepreneurs) showed that they would be interested in employment of graduates in the following professions ( the figures in the brackets show the number of respondents) : fitter (18), brick layer (16) , construction worker (15) , tiller (14), plasterer (11), roofer (9), electrician (5), welder (5), fork lift trucks operator (4).

Average employment in construction-housing sector of świętokrzyskie province:

\* in year 2010 : 19.832 employees

\* in year 2009: 20.480 employees

The difference between years 2010 and 2009 is 3,2% , what shows that employment level during last years was rather stable in our region.

The above description concerns existing professions and doesn't include future labour market in construction sector.

## **VII. The employees competences required by future construction -housing market in świętokrzyskie region.**

### **VII.1 Technical aspects concerning the demands of future construction-housing market**

The EC proposes, to enable implementing of sustainable construction development principles, to apply the regulations, uniform methods of standardization, and forcing the “ecological aspects” in relation to state, designing and construction institutions. also in the offers of public procurement tenders in construction sector. The EC priorities connected with construction sector concern: rationalization of energy consumption, air conditioning, energy saving lighting system , thermal insulation and heating of buildings, their energetic efficiency, application of new renewable energy sources, set of ecological construction systems and materials, energy-saving and passive construction-housing buildings.

One of the most essential matters in construction sector will be observance of the EC recommendations, resolutions, guidelines and plans concerning implementation of energy saving solutions and principles in conformity with the EU New Energetic Strategy 2020. It simply transfers itself to construction-housing market. Most efforts in the EU will be directed for creation of new profession – so called “ green collar” worker ( or *Green Jobs Workers*) where some of them will be employed in modern construction-housing branch. Formal environmental regulations and social expectations are pushing many firms to seek the educated green collar professionals, skilled and experienced in energy- saving, passive buildings construction-housing, oriented to new pro-ecological materials, technologies and clean renewable energy issues. *Green collar* workers those are the professionals including also green building architects, construction workers, solar building designers, wind energy engineers and workers / installers . *Green collar* workers also include vocational or trade level workers: electricians, workers who install and maintain solar panels, plumbers, who install

solar water heaters, construction workers, who build energy-saving *green* buildings, execute various construction works to make the buildings as energy-saving passive objects, or other workers involved in clean, renewable sustainable future energy development in construction sector. It demands and will demand the vocational education system to educate new graduates oriented to pro-ecological area, construction of energy-saving and passive buildings and as a result of it - assuring the presence on the market of well educated, the new experienced and skilled staff at vocational level. Development of the future of construction sector in świętokrzyskie region will also depend on external (Polish, the EU) economic situation, existing economic crisis in various sectors, Euro rate, increase of unemployment level and the like.

So it will be required to re-educate the present graduates of vocational schools (in construction-housing sector), assure them additional education programs to be taught at schools and vocational development institutions, upgrade the existing graduates skills in the area of new pro-ecological, energy saving and passive buildings technologies, materials, equipment, solutions which will be applied in construction-housing sector. It seems also advisable to implement new VET programs for completely new professions demanded by construction market (use of renewable energy, construction of passive building objects for example). It will be transferred directly to the skills, competences and qualifications of construction workers – i.e. the students graduating vocational schools, as well to education programs at vocational level.

The European commission assumes that by year 2020 about 3 million people will be employed in pro-ecological and energy saving sector (so called *green collar workers*). That number of new employees will also include people employed in construction sector.

The construction market demands will change in the nearest future. It will concern not only the needs of use of pro-ecological, environment friendly materials and technologies, application of modern national and international standards, but also the need for better educated, qualified, skilled construction-housing workers having the required qualifications.

New and modern construction market will also have new customers (individuals, institutions, enterprises) which will require the new professional workers ready to work in construction-housing sector with its new energy-saving demands.

Below we present a short description of the tendencies and forecast for the future construction (housing) sector:

*The EU buildings use 42 % of energy and produce 36 % of greenhouse gases.*

*The future in construction market ( housing buildings sector) will be closely connected with use of ecological, energy-saving constructions and execution of passive building objects – treated as standard solution in that sector. It is possible to save up to 30 % of energy in building sector. According to the EU requirements since 2018 passive building objects will have to be built only.*

**Passive buildings:** *standard of construction objects of very good insulating parameters, with external partitions, many applied new construction solutions to minimise energy consumption during use of construction –housing objects. Practical experience shows that the demand for energy in those objects is eight times smaller than in traditional building objects built according to current obligatory standards in construction sector. That is a great challenge and opportunity to assure adequate education for young people and workplaces after they graduate vocational education schools.*

***The table below shows the advantages of passive buildings in relation to old type objects:***

Average consumption of energy of the building objects per square meter per year (kW / m <sup>2</sup> / a)		
Old type building	Bldg with mechanical ventilating system	Passive building with mech. vent. and heat recovery
200-300 kW/m <sup>2</sup> /a	50-70 kW/m <sup>2</sup> /a	15 - 30 kW/m <sup>2</sup> /a

So it is easy to confirm, that the buildings constructed according to passive building technologies uses up 10 ten times less energy than traditional buildings.

*Energy-saving and passive buildings will require to apply new technologies, techniques and materials as well. New system of assembling works will have to be applied there as well (assembling of windows, doors, air ducts, the systems of hot air supply, the building object tightness, ventilating systems with heat recovery, new insulating materials and technologies). Various types of materials and technologies will be applied in construction-housing sector, concerning , among other things:*

- a) limestone-sand products with good acoustic insulation, construction insulation, chemicals, construction composites ( replacing the existing ones – e.g. by carbon-resin composites),*
- b) techniques for insulation continuity,*
- c) new techniques of doors and windows construction and assembling,*
- d) application of new materials absorbing the heat and energy,*

- e) new systems of external surfaces of the buildings, reflecting the light,*
- f) new insulations for building objects with use of new insulating materials,*
- g) new ventilating systems to control air inflow and outflow,*
- h) use of heat exchangers for hot usable water purposes,*
- i) modern connecting mineral adhesives,*
- j) new generation concretes and composite cements,*
- k) new modern materials without harmful chemical compounds, additives, friendly to environment and the like.*

It is obvious that new products, materials, machines, technologies and architectonic solutions will appear on construction-housing market- so a wider range of vocational skills and competences will be required from construction workers. Correct vocational education, taken trainings, completion of additional special courses, new specializations in construction-housing sector will be the matter of highest importance in that sector. It will directly transfer to new professional having the updated skills and competences to be implemented in that sector.

## **VII.2 Dominant future profession demanded by regional construction - housing market.**

### ***VII.2.1 The existing and future needs of construction(housing) sector in świętokrzyskie region and definition of dominant future profession:***

Future construction-housing market will demand the skilled construction workers, who graduated vocational education school, have sufficient experience, skills and qualifications. The evaluation of construction-housing sector ( made on the basis of opinions of the entrepreneurs , VET providers, PES institutions, analysis, remarks of CIC Staropolska and conclusions from the workshops held by CIC Staropolska) is, that current workers in that branch are not well educated in the area of energy-saving, passive buildings construction. According to our analysis the construction entrepreneurs don't participate and don't want to participate in vocational trainings and upgrading of the skills of vocational schools students. At the same time our regional construction companies would like to get skilled and experienced gradutors without any previous input, or support from construction companies side to support the students practical experience during vocational education and after graduation as well . That opinion is confirmed by the entrepreneurs, business supporting institutions, government and non-government institutions as well.

The EU demands clearly define the need of realization of the building energy-saving and passive building objects meeting the Energetic Strategy 2020 principles – what simply transfers to improvement of vocational qualifications, skills and experience in construction sector. That is the matter of the nearest future. Application of new construction solutions, new technologies, materials is a matter of urgent actions to be taken also in our region, The main problem at present is lack of new construction professionals who graduated or soon will graduate the vocational education schools as construction-housing professionals. It will require to implement as soon as possible not only a program of upgrading of existing skills and knowledge, but also to organize special training courses for teachers and students, educate completely new professionals ( at vocational level) – to have in construction market the skilled, well educated and experienced modern general construction-housing workers .

**The presented SWOT analysis concerns general construction-housing sector in our region:**

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>* growing market demand for energy-saving and passive construction workers;</li> <li>* Energetic Strategy for Europe 2020 creating new construction market demands;</li> <li>* long traditions in construction sector of świętokrzyskie region;</li> <li>* construction companies in the region significant on a national scale;</li> <li>* good education resources ( vocational schools, technical universities) in the region</li> <li>* recognized business supporting institutions in the region;</li> </ul>	<ul style="list-style-type: none"> <li>* lack of regional connections and cooperation between construction business, education, government and non-government institutions;</li> <li>* low level of economic and infrastructural development of our region;</li> <li>* lack of construction sector entrepreneurs interesting in participation/ supporting of vocational education system</li> <li>* lack of monitoring and prognosis systems closely connected to construction market and education demands for new professions in the region;</li> <li>* lack of construction practical education centre in the region;</li> <li>* lack of attractive offer for young people re. vocational education in construction sector in the region</li> </ul>
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>* readiness of business supporting institutions to participate in vocational education system – construction sector in particular;</li> <li>* obligatory implementing of Energetic Strategy for Europe 2020 in the region;</li> <li>* national and regional legislative frame - works for vocational demands in construction sector;</li> <li>* establishing of the network of cooperation:</li> </ul>	<ul style="list-style-type: none"> <li>* economic crisis in the EU and Poland;</li> <li>* decreasing level of skilled and experienced workforce in modern construction sector;</li> <li>* marginalization of the region being a part of economically poor five regions (so called Eastern Poland regions) in Poland;</li> <li>* administrative barriers in implementing of modern vocational education system;</li> <li>* lack of monitoring and forecasting institu-</li> </ul>



<p>business-education- supporting institutions;</p> <ul style="list-style-type: none"> <li>* practical training courses at modern enterprises for vocational education of teachers and students in construction sector;</li> <li>* increased number of training courses for construction vocational education sector;</li> <li>* establishing of one institution responsible for prognosis, current analysis of construction labour, vocational education and cooperation with regional authorities.</li> </ul>	<p>tions in vocational education and labour market in our region</p> <ul style="list-style-type: none"> <li>* low regional infrastructure level impacting directly or indirectly on our region development</li> <li>* high level of unemployment of young educated people resulting in leaving our region by skilled people;</li> <li>* the Euro rate to PLN and prices increase with negative results to our region economy and construction sector as well.</li> </ul>
---	--

This project focuses on construction-housing sector in świętokrzyskie region,

<p>Selected new dominating sector, in świętokrzyskie region, covered by this project:</p>	<p><b>Construction- housing sector</b></p>
---	--

On the basis of CIC *Staropolska* investigation and analysis of construction market needs, internal and external circumstances, prognosis for construction sector in the EU, Poland /region and on the basis of results and conclusions from the workshops held by us)- we selected one the most demanded profession in our region construction (housing) sector:

**General construction-housing worker in energy-saving and passive buildings area.**

1. **One the new leading and dominant profession** (selected by us) which will have to be entered into nearest future in modern construction market with completely new vocational education background:

<p>Selected new dominant profession in construction-housing sector:</p>	<p><b>General construction-housing worker in energy-saving and passive buildings area</b></p>
---	---

General construction-housing workers will be closely connected with new energy saving and passive buildings technologies and also called as “green-collar workers”. The new group of so called “ green collar” workers and engineers will include about 3 million people by year 2020 – according to the EU forecasts.



The **general construction-housing worker** will be closely and directly engaged in a wide range of tasks and works demanded by future housing-construction market, requiring the knowledge, skills and competences in the following:

**VII.2.1.1. The areas of new skills and competences requirements for new profession:**

**“general construction – housing worker in energy-saving and passive buildings”.**

On the basis of our experience, held workshops analysis of construction market- we assume the following competences to be required in the future for that new profession ( *general construction – housing worker in energy-saving and passive buildings*):

- a) spatial planning of modern energy-saving construction objects ( using of nature in economic managing of energy, location of a building object, passive use of solar energy for housing objects );
- b) understanding of conceptions of passive and energy-saving housing construction (optimization of house openings, doors, windows designs, partitions, house tightness, hot air ventilating systems, air flow, application of renewable energy sources for heating of the building objects,...);
- c) understanding of architectonic-construction projects ( thermal insulation requirements, air flow, application of the newest technologies and materials for the buildings construction);
- d) good theoretical and technical understanding of general – construction projects (application of optimized solutions in the buildings, pro-ecological and energy-saving materials and technologies, technical drawings and descriptions of construction projects);
- e) knowledge of modern ventilating and installation systems in passive buildings (modern equipment for saving of water, energy consumption, heat recovery, tightness and effectiveness of electric energy use, ecological system for sewage draining units, new sanitary and electric systems, assurance of quality supervision systems use for technical equipment in the buildings );
- f) execution of construction works ( air tightness, ducts, air flow, preparation of works and assembling of foundations, walls, doors, windows roofs acc. to passive building requirements, participation in technical acceptance of construction objects elements, connection of the building installations to renewable energy sources systems,

intelligent buildings with constantly developed technologies in that area, computerization of building works, use of automatic systems in building works);

- g) familiarization with modern, pro-ecological construction materials, chemical agents to be applied in construction – building sector ( plasters, insulations, injecting resins, special purpose agents, mineral binders, new generation compounds and the like-applied impassive buildings)
- h) implementing of new technologies, ICT in construction sector.

Considering the areas of future new competences for that profession – after investigation of construction market needs, we assume the following new skills to be required in the future for that new profession ( *general construction – housing worker in energy-saving and passive buildings*):

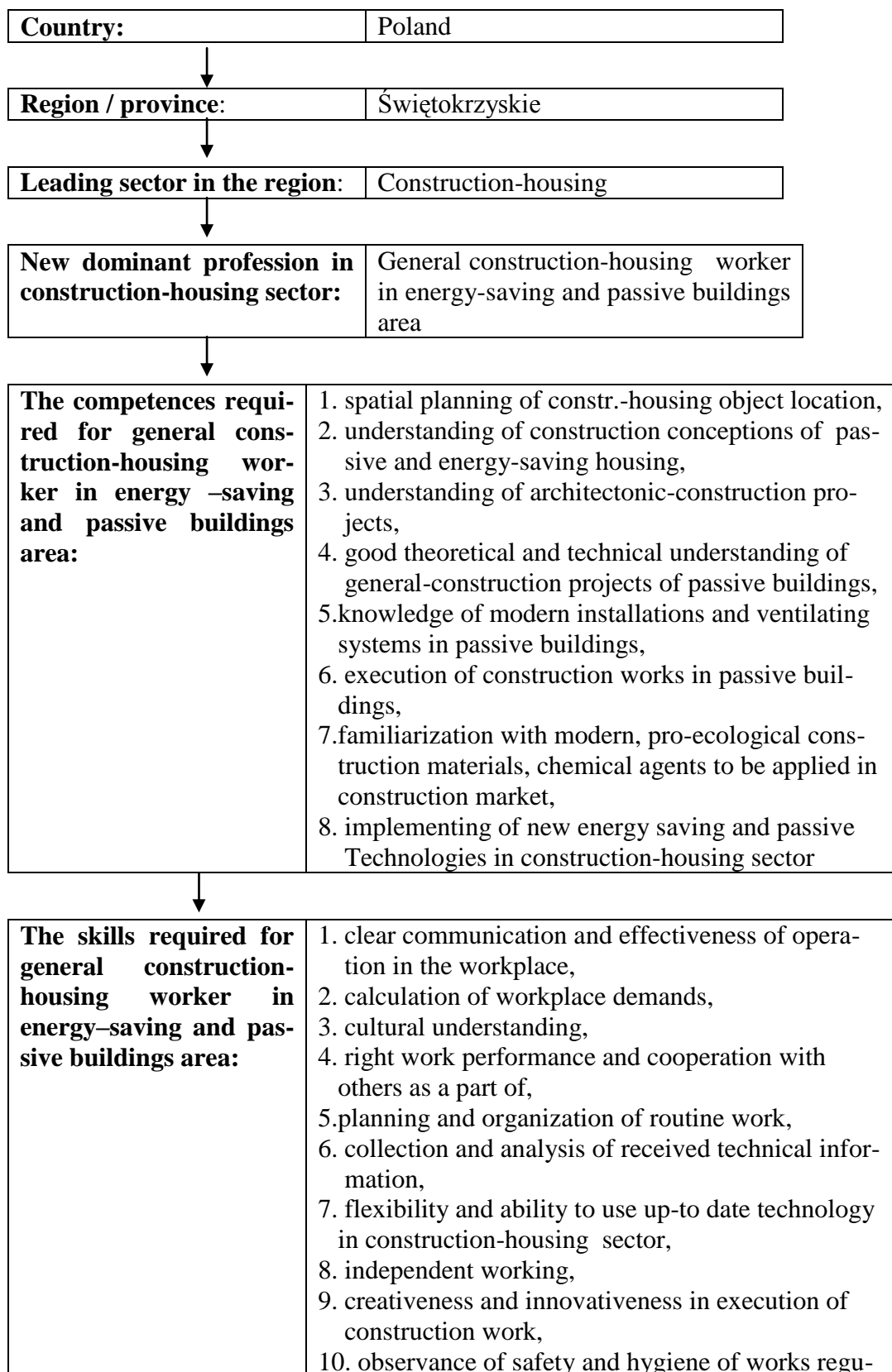
:

- a) clear communication and effectiveness of operation in the workplace ( understanding of oral / written instructions and their relay clearly to others)
- b) calculation of workplace demands ( considering maximum demands for the works to be done by that specialist),
- c) cultural understanding ( respect of rights and views of co-workers and customers),
- d) right work performance and cooperation with others as a part o a team ( accepting decisions of the work group, sharing of work and taking responsibility for particular aspects of work),
- e) planning and organization of routine work ( selection of materials and tools required to a defined kind of work; they should be on hand if they are required to perform a defined kind of work to be done);
- f) collection and analysis of received information ( technical information, records, manuals, drawings, job specifications, construction standards, quality assurance requirements, etc...);
- g) flexibility and ability to use up-to date technology in construction sector (familiarization with modern technological equipment, materials, processes, techniques- to use them appropriately in the workplace);
- h) independent working ( working independently and reliably with little or no supervision, where it is necessary);

- i) creativeness and innovativeness ( implementing of own strategy to resolve and deal with the problems in the workplace of general construction worker in energy- saving and passive buildings ) ;
- j) observing of safety and hygiene of works regulations and principles ( get acquainted with relevant S&H regulations, procedures and apply them during everyday work , prognosis and analysis of the potential risk and application of the responsibility actions in the workplace);
- k) diagnosing of the faults in construction works ( diagnosis of the construction faults during execution of works by others and immediate reporting to the supervising bodies/ responsible authorities in emergency circumstances, as well taking remedial actions according to obligatory regulations);
- l) undertaking of commissioning procedures of the executed construction-housing works (undertake commissioning of made construction works and participate in commissioning teams according to obligatory regulations covered by a worker's workplace);
- m) assurance of right use, maintenance and storage of construction materials, tools and apparatus and keep them in proper, ready to use conditions;
- n) good orientation in application of pro-ecological materials and components applied in passive buildings, familiarization with energy-saving, passive, pro-ecological building solutions, modern construction materials appearing on construction market in passive buildings area;
- o) practical performance of works closely connected with direct use of new materials, technologies and solutions required to be applied in construction-housing objects;
- p) knowledge of foreign language to be used in daily work ( oral and written, to understand technical, descriptive documents, materials, run conversations in foreign language in the area of construction sector and general matters – facilitating execution of work and upgrading the competences in that area).

Vocational education in construction sector according is assigned to level 3 of EQF and PQF. That level includes three areas: knowledge, skills and competences. Skills and competences connected closely with a new profession ( *general construction – housing worker in energy-saving and passive buildings*) have been described on previous pages.

The scheme of arrangement of competences and skills demands for new profession covered by this project:



	<p>lations in energy-saving and passive buildings construction,</p> <p>11. diagnosing of the faults in construction works,</p> <p>12. undertaking commissioning procedures of the executed housing - construction works</p> <p>13. maintaining of construction materials, tools and apparatus in proper, ready to use conditions,</p> <p>14. good orientation in application of pro-ecological materials and components applied in passive and energy-saving buildings,</p> <p>15. practical performance of works directly connected with use of new materials, technologies and solutions applied in construction-housing objects,</p> <p>16. knowledge of foreign language to be used in daily construction-housing work</p>
--	--

Appropriate level of general knowledge, proper vocational education improve the level of vocational skills and competences of the graduates- thus allowing them to meet the challenges in a changing labour market.

The analysis of development of future professions / skills and competences in regional construction market is based on seven steps:

1. Identification of economic activity: *this project focuses on construction-housing sector;*
2. Main economic and employment trends and structure related to a selected sector trends (*those trends have been described in previous chapters of this project*);
3. Main drivers of change : (*current situation in construction sector of świętokrzyskie province – described above*);
4. Main implications for employment ( *the figures, descriptions as stated above*)
5. Main implications for skills - ( *emerging needs in construction sector described in this project and above chapters. New professions and training programs will be required to be applied in construction sector, connected with construction-housing market development and implementing of new, energy-saving and passive technologies*).
6. Main strategic choices to meet future skills and knowledge needs- ( *new skills requirements and their transfer to new or extended qualifications of the employees and graduates – described above*).
7. Main implications for education and training – ( *that is described in the previous and next chapters of this project, treating about existing functioning of VET system and its*

*transfer to future construction market). The project also considers development of existing professions and creation of new professions as well.*

All the above matters were discussed in details during all 17 workshops which were organized by CIC “Staropolska” during this project development. They were also investigated and summarized in the conclusions of final summary workshops held on 29<sup>th</sup> of February 2012 with participation of the representatives of: VET institutions, PES, entrepreneurs, government and non-government institutions, business supporting institutions from świętokrzyskie region.

The new profession ( *general construction – housing worker in energy-saving and passive buildings*) described above, will require to establish a new fields of studies at vocational education schools in świętokrzyskie region and Poland as well. I will be closely connected with the requirement of assurance of skilled, well educated, competent and practically experienced vocational education teachers who will teach vocational subjects and run practical courses as well. The demands related to VET and PES institutions are included in a separate chapter of this project.

**SWOT analysis concerning general construction – housing worker  
in energy saving and passive buildings:**

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>* that is a completely new profession which is and will be the most demanded by construction sector in Europe and Poland,</li> <li>* the EU and Polish regulations supporting development of that profession ,</li> <li>* implementing of New Energetic Strategy for Europe 2020 – forcing creation of that new profession in construction sector;</li> <li>* the requirements of Polish Energetic Law (Art. 13-15) re. energy efficiency- forcing creation of that profession in construction sector.</li> <li>* pressing of foreign investors to apply new energy-saving technologies and processes in construction sector and employ the new specialists in passive buildings construction</li> <li>* the urgent need of adaptation of construction sector to new demands on that market,</li> <li>* the entrepreneurs are convinced of urgent need of employment of that specialty graduates at their construction enterprises.</li> </ul>	<ul style="list-style-type: none"> <li>* lack of skilled and educated teachers at vocational schools specialized in new technologies, energy saving and passive buildings ( thus poorer education of vocational education school students)</li> <li>* no passive buildings are being built at present in the region, thus there is no place to get experience during participation in real construction of those objects;</li> <li>* too low number of practical workshops and practices in new construction technologies area resulting in poorer vocational experience of graduates</li> <li>* no leading institution analyzing, forecasting and defining future needs in constr. market</li> <li>* construction companies are not engaged in creation of education and practices program in cooperation with vocational schools;</li> </ul>

<ul style="list-style-type: none"> <li>* good potential of young people, ready to study that profession at vocational schools in the region,</li> <li>* good perspective for development of that new specialty (<i>green collars</i> in energy saving and passive buildings) branch in all the EU.</li> <li>* direct impact on decreasing of unemployment level in the region.</li> <li>* energy saving and passive buildings construction specialists will be the most demanded in construction market.</li> </ul>	
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> <li>* elaboration and implementing of legislative framework for investigation and analysis of new construction sector education needs ;</li> <li>* establishing of the network of cooperation: administration-education-business supporting institutions in new construction education area;</li> <li>* assurance and financing of training courses at modern enterprises for vocational education of teachers and students in construction sector;</li> <li>* increasing of the number of training courses for construction vocational education sector to improve the graduates skills.</li> <li>* assurance of more training courses/ practices for vocational school students directly on buildings construction sites.</li> </ul>	<ul style="list-style-type: none"> <li>* economic crisis in the EU and Poland;</li> <li>* unstable Euro rate;</li> <li>* decreasing level of skilled and experienced workforce in modern construction sector;</li> <li>* marginalization of the region being a part of five economically poor regions (so called Eastern Poland regions);</li> <li>* administrative barriers in implementing of modern vocational education system;</li> <li>* lack of monitoring and forecasting institutions in vocational construction education and labour market in our region</li> </ul>

***VII.2.2. Other existing professions in construction – housing market in świętokrzyskie region, which will require to improve / upgrade the workers competences only.***

There is a wide range of existing professions in construction sector, including among other things : a bricklayer, plasterer ( plastering unit operator), tiller, plumber, carpenter, fitter, construction machines operator, painter, scaffolding assembler, thermal insulation fitter, door-windows frame fitter, etc...

The construction sector workers ( having completed or being completing their vocational education) will be able to upgrade their competences at training courses, practices, supplementary education at branch vocational education institutions. Main existing professions have been selected on the basis of CIC *Staropolska* investigation of



construction market needs and on the basis of results and conclusions from the workshops held by us. The table below shows the area of six other existing professions in construction sector where the skills and competences will have to be upgraded only:

<b>The exemplary profession (level 3 EQF, PQF):</b>	<b>The exemplary areas of upgrading of future skills and competences during standard education at vocational schools:</b>
1. Bricklayer	<ul style="list-style-type: none"> <li>* new safety and hygiene of work regulations in the area of professional work,</li> <li>* new construction insulation,</li> <li>* new construction machines,</li> <li>* constr. of walls, windows,</li> <li>* modern mineral adhesives,</li> <li>* modern cement composites, materials</li> <li>* thermal insulation of walls</li> <li>* arrangement of new work place</li> <li>* understanding of modern constr. drawings</li> <li>* foreign language in construction sector</li> </ul>
2. External elevation worker	<ul style="list-style-type: none"> <li>* new safety and hygiene of work regulations in the area of professional work</li> <li>* constr. of int. / ext. walls, windows,</li> <li>* modern mineral adhesives,</li> <li>* modern composites for plaster placing</li> <li>* thermal insulation of walls</li> <li>* arrangement of new work place</li> <li>* understanding of modern constr. drawings</li> <li>* foreign language in construction sector</li> </ul>
3. Floor covering worker	<ul style="list-style-type: none"> <li>* new safety and hygiene of work regulations in the area of professional work,</li> <li>* new machines for floor covering</li> <li>* modern mineral adhesives,</li> <li>* modern composites and materials for floor covering</li> <li>* arrangement of new work place</li> <li>* understanding of modern constr. drawings</li> <li>* foreign language in construction sector</li> </ul>
4. Plumber	<ul style="list-style-type: none"> <li>* new safety and hygiene of work regulations in the area of professional work</li> <li>* new insulation and network - pipe materials,</li> <li>* environment protection in installation systems</li> <li>* modern cement composites</li> <li>* arrangement of new work place</li> <li>* understanding of modern constr. drawings</li> <li>* foreign language in construction sector</li> </ul>
5. Finishing works worker	<ul style="list-style-type: none"> <li>* new safety and hygiene of work regulations in the area of professional work,</li> </ul>



	<ul style="list-style-type: none"> <li>* new construction materials and machines,</li> <li>* construction of walls, windows, int./ext. walls,</li> <li>* modern mineral adhesives, composites, materials in constr. sector</li> <li>* thermal insulation of walls</li> <li>* arrangement of new work place</li> <li>* understanding of modern constr. drawings</li> <li>* foreign language in construction sector</li> <li>* diagnosis of construction work faults and taking the emergency actions to complete the construction object realization.</li> </ul>
6. Electrician-electronics in construction sector	<ul style="list-style-type: none"> <li>* new safety and hygiene of work regulations in the area of professional work</li> <li>* new electric /electronic solutions applied in housing construction sector,</li> <li>* diagnosis of faults in apparatus and associated circuits</li> <li>* safe and efficient handling of electrical materials</li> <li>* correct installation of the wired electrical apparatus</li> <li>* participation in commissioning procedures of constr. – electric systems</li> <li>* maintaining of apparatus and their electric circuits in high operating efficiency</li> <li>* understanding of modern constr. drawings</li> <li>* foreign language in construction sector</li> </ul>

Additional trainings, education courses, technical practices, apprenticeships will have to be organized for those profession workers to adapt them to new challenges and demands of future construction-housing market dominated by energy-saving and passive building objects. The trainings should be held in close relation with New Energetic Strategy 2020 established by the EU. Those actions will assure the construction workers to get new competences and experience for their job in future construction markets. It will also support the skilled workers to fit their professions to that market demands in a wide construction area.

Those listed above professions will require to upgrade the students competences during their vocational education process, what in general (among other things) will be focused on the following aspects:

- a) reading and understanding of information presented in the form of technical descriptions, instructions, drawings, technical and technological documentation related to the newest solutions applied in a given profession;

- b) processing of the figures and operational data connected with the newest technologies and materials applied in energy-saving and passive buildings construction sector
- c) safe performance of professional tasks in conformity with safety and hygiene of works obligatory regulations, the EU standards, fire-protection and environment protection regulations related to modern energy-saving and passive buildings construction sector;
- d) knowledge of foreign language enabling to perform the newest professional tasks;
- e) updating and improving of knowledge and professional skills in modern construction sector;
- f) arrangement of the place of work, planning of the operations connected with performance of charged task.

## **VIII. The conclusions of CIC “Staropolska” regarding the existing state and perspectives of vocational education in construction-housing market.**

### **VIII.1 The conclusions of CIC “Staropolska” from the workshops held in years 2010 – 2011 and final workshops held in February 2012.**

In years 2010 – 2012 CIC “Staropolska” made 18 workshops within the framework of *JS Toolbox* project. The partners participating in those workshops were: different professionals and experts, representatives of vocational school, branch enterprises, business supporting institutions, government and self-government institutions, regional labour office, regional department of education of świętokrzyskie voivodeship, the centre of vocational school teachers education, and the like. During those workshops we discussed about adaptation of vocational education institutions and systems to new construction-housing market demands, the matters of future needs in construction sector, labour market, education and construction market trends and obstacles existing in those sectors. The workshops were also the places of discussion regarding:

- the perspectives of vocational education in świętokrzyskie region,
- competences of government and non-government institutions in vocational education;
- evaluation of labour market connected with vocational education system at present and in the future;

- the matters of vocational training courses ( construction sector);
- the incentives to educate at vocational education schools including modern and innovative professions;
- improvement and development of existing vocational education system;
- conformity of education in the region with the EU initiatives, including new energetic strategy for Europe 2011-2020;
- cooperation of Business Supporting Institutions with VET, PES institutions and enterprises in the region.
- presentation of performance of the program for long-life vocational learning;
- the demand of construction market for energy – saving and passive building construction specialists;
- cooperation of SMEs in investment in vocational education and vocational apprenticeships;
- the analysis of adaptation of future vocational skills in construction sector to labour market needs;
- the activities of government and self-government administration for vocational education system at present and in the nearest future.

Most of conclusions from those workshops have been included in this our elaboration. The workshops showed that there is a gap between cooperation of business / entrepreneurs sector and vocational education system and that those sectors don't cooperate properly together. The institutions participating in our workshops were satisfied- for the opportunity of expression of their remarks, proposals and opinions and their hope that some of their proposals and suggestions will improve the existing state of vocational education system and better cooperation of business-entrepreneurs- education institutions.

The final – summary workshops we made on 29<sup>th</sup> of February 2012 at CIC “Staropolska”. The participants of the last – final workshops included the big construction – housing companies in świętokrzyskie region in that sector, the representatives SMEs, VET and PES institutions. The total number of participants in the final workshops mad by CIC “Staropolska” was: 14..

We made our own questionnaire for the participants of final workshops connected with vocational education and construction sector in the region- concerning evaluation of those markets and proposals for their better activity at present and in the future.

Herewith we enclose the summary of the final workshops – made in a form of six questions and collective answers and proposals of the workshops participants, as they stated in their answers.:

**Question 1. *How to upgrade the teachers qualifications in vocational schools, considering the future needs of construction market.***

It is demanded to assure the arrangement and implementing of practices for vocational education teachers at the construction companies. The teachers should be directed to 3-6 month training courses. The training courses for vocational education teachers in construction companies should include: new energy-saving passive technologies, materials, components, production processes). Practical training should be obligatory for vocational education teachers. It should be based on a practice trainings program elaborated for vocational education teachers in construction area. Those training should be based on clear principles of financing and definition of the training conditions. A special unit/institution should be established in the region – to analyze construction, forecast and plan its future demands and effectively operate in the area of mutual cooperation between construction sector enterprises and VET institutions. At present there is no such institution, as well there are no the principles of organization of vocational practices for the vocational school teachers teaching the students for future professions in construction industry.

**Question 2. *What has to be done to assure good cooperation of vocational schools and enterprises.***

Implement the practical courses of the students with participation of vocational education teachers and paid practice courses for a student and entrepreneur. It is required to co-finance the vocational schools and enterprises engaged in vocational practices. Include the entrepreneurs in a didactical process at vocational education level. The entrepreneurs in construction sector propose to oblige the students / trainees trained at a given construction company to work for a given period of time ( few years) at that company after termination of a given training course, on condition that a given student will have to return the money spent for his training at a given company if he leaves it within a defined period.. Such obligation would be a kind of insurance for an entrepreneur for his time and money spent on education training of a given student. It is also necessary to use the existing government, non-government, education institutions to elaborate a reliable analysis of the needs of existing and future construction labour market in the region.

**Question 3. *How to match the vocational practices with the needs of present and future***

***labour market needs in construction sector.***

Assure participation of the regional construction companies in preparing and setting of the vocational school curriculums. Increase the number of vocational practices courses. Government, self-government institutions should make a detailed analysis of construction sector., terms and principles of training of vocational education teachers at modern and technologically advanced companies, including the established principles in the area of correct cooperation with the entrepreneurs / construction companies.

**Question 4. *The remarks concerning preparation of education and vocational education sector, enterprises to future needs of construction sector in the region;***

At present there is poor vocational and good theoretical preparation of the vocational school graduates. Education and practical courses should be arranged according to the needs of existing and future construction market. Because of financial problems of vocational schools and their no modern equipment – it is necessary to organize the practices for students directly on the building sites, meeting the current and future standards in energy-saving and passive buildings area. It is also required to equip the vocational schools with modern equipment. Another essential factor is to increase the number of practical courses hours (spent at the workshops and construction companies) in vocational schools to the level comparable with other the EU countries – where about 60-70% of learning hours are designed to practical training courses. It is an urgent matter to educate and train the teachers of future professions in construction sector – who next will educate and train the vocational school students. The time required for education and training of the teachers, next teaching by them the vocational school students will take almost few years – what is a negative aspect for quickly developing construction sector (delay in entering the construction market by skilled and experienced graduates. In the current situation our construction sector is on weaker position if tenders will concern the execution of modern passive and energy-saving buildings (acc. to the EU requirement such buildings will have to be built after year 2018). At present our graduates are not well skilled, without experience to perform the works in such modern construction objects).

**Question 5. *What are the present professions which will need only upgrading of qualifications for the new needs of construction market:***

Bricklayer, external elevation worker, plumber, floor covering worker, finishing works worker, electrician-electronics in construction sector.

***and what new professions will be demanded in that sector:***

There is one dominating and leading new profession: *construction worker in energy-saving, passive and pro-ecological construction – housing sector*. That future profession should be included in the classification register of vocational education professions. It is also demanded to run the lobbying activity in the ministries to support (financially or in kind) the education and vocational practices in that profession, also to speed up the legislative works and general support of that education branch. At present there are no teachers, vocational trainers in energy-saving and passive construction-housing sector – who should train and educate the vocational school students.

**Question 6. *Evaluation of engagement of government, self-government institutions, business support institutions, labour offices in the process of analysis of present and future needs of construction market and in the development of new vocational skills in construction sector.:***

Labour offices don't forecast the demands for professions in construction-housing branch. There is a great and urgent need to start mutual cooperation of business supporting institutions, vocational schools, enterprises, government and self-government administration – to define clearly the needs of construction market and development of new vocational skills, next to implement the required solutions in practice. No actions were taken to assure the presence on the labour market of properly educated, skilled professionals, having the newest skills and experience enabling them to be employed, just after graduation of vocational school, at direct modern construction works positions. There is no cooperation between the employers- business supporting institutions- self-government institutions and other partners of VET system, what could give only positive results.. It is reasonable to establish one ( maybe in the existing system of institutions) institution / unit for coordination and forecasting of labour market in construction sector, vocational education – to prepare future graduates to perform the construction works in modern, energy-saving and passive construction – housing industry.

**VIII.2 The conclusions based on CIC "Staropolska" analysis of VET, PES institutions, employers proposals, opinions and investigation of construction sector in świętokrzyskie region.**

On the basis of our analysis and investigation of construction sector, PET, VET their surrounding institutions in świętokrzyskie region – we have divided the final conclusions into two parts:

**a) The actions to be taken in the region in vocational education area:**

(acc. to the workshop conclusions, CIC Staropolska analysis,

PES institutions and entrepreneurs opinions ):

- \* setting-up of the base of existing vocational schools for regional construction sector;
- \* promoting and motivating of the entrepreneurs who upgrade the qualifications of the trainees and apprentices;
- \* increasing of the number of apprenticeships and training courses / hours during education in vocational schools;
- \* encouraging of the employers to cooperate with schools for better preparation of future employees to new construction market demands;
- \* familiarizing of the students with the employers demands in skills, abilities and new technologies.
- \* assurance of participation of construction sector entrepreneurs in education costs.
- \* elaborating and implementing of the strategy of cooperation of PES institutions, entrepreneurs with vocational education schools;
- \* business supporting institutions should plan and organize the courses and trainings in the areas of construction sector demands;
- \* establishing of an institutional leading company ( Business Supporting Institution), which will perform the labour market testing, analyses, prognosis, disseminate information about construction market related to our region and the like;
- \* running the systematic tests and analyses of construction market vocational needs;
- \* participating of construction sector enterprises in vocational trainings and apprenticeships for vocational education students;
- \* developing of the strategy of cooperation of the entrepreneurs with vocational schools,
- \* increasing of the number of construction practical courses during education in vocational schools,
- \* the system of vocational education should include the flexibility of construction education system, to assure a graduate adapting smoothly to the changes in



labour market .

Herewith below we present the final table divided into three columns:

- the first: describing the tasks to be made ion the area of VET system improvement,
- the second: stating the institution to be directly involved in actions to be taken ,
- the third: description of the actions to be taken by those institutions.

**b) The actions necessary to be taken at regional level by PES, government and self-government institutions for VET improvement in construction-housing sector:**

<b>The task to be made:</b>	<b>Institution name:</b>	<b>Description:</b>
Running the systematic and repeatable tests of regional labour market re. vocational education with particular attention paid to prognosis	Regional Labour Office	That will be the duty of Education Vocational Information Centre, which will be established from 2016
Establishing of a team engaged in programming of VET system	Marschall Office of świętokrzyskie province	Establishing of Professional Education Board, also Regional Labour Office, Education Department of Świętokrzyskie voivodeship, Świętokrzyskie Centre for Teachers Education Upgrading, Regional Board for Employment Affairs, business supporting institutions, employers
Elaboration of regional plan of vocational education system modernization	Marschall Office of świętokrzyskie province	Cataloguing of the resources, establishing of vocational education tasks, elaboration of education standards
Establishing of county centres for rendering the vocational education advisory services	Świętokrzyskie region county offices, Kielce City Council	Supporting of vocational schools in vocational and education area
Establishing of the Centre for Practical Education Affairs in Kielce	Kielce City Council	Assurance of workshop equipment for vocational schools. The analysis of education of practical education of teachers in vocational schools
Closer cooperation of vocational schools with the employers	Vocational schools management	Assurance of high quality of vocational and practical education
Obligatory vocational		The obligatory duty of



upgrading of vocational subjects teachers in vocational schools	Vocational schools management	periodical upgrading of vocational skills, running the training and education courses in the companies
Modernisation of teaching curriculums subjects	Vocational education teachers	Coordinator: existing świętokrzyskie centre for teachers upgrading in Kielce

### VIII.3. Final conclusions:

The made and presented tests results show that demand for well educated graduates of vocational schools, especially in energy-saving and passive construction-housing sector, will increase in the nearest future. That should be a direction for development and implementing of the strategy of vocational education in our region. The number of micro-enterprises in construction sector, willing to employ the well skilled and experienced construction graduates increased during the period of this project elaboration. The number of SMEs which don't plan to increase their employment level decreased form 54% to 35%.

The enterprises in construction sector( micro-enterprises in particular),those are treated as potentially one of the biggest employers in the region.

According to the entrepreneurs opinion ( about 70% of the enterprises representatives) the most important for them is professional experience of newly employed workers. About 30% of the entrepreneurs highly evaluate an employee who has professional licenses. The construction-housing sector entrepreneurs treat the qualifications and professional experience equally with the moral and social capital. They also appreciate honesty, reliability, intelligence and promptness for execution of a given job. The same tendency is in the world. There is a developing demand of modern and future world's construction market for skilled and experienced graduates. So vocational education strategy should be directed towards development of practical training courses and general reliable preparation of new employees to new professional challenges. It mainly concerns construction-housing ( energy-saving and passive buildings) market.

In świętokrzyskie region there is no professional agency for employment affairs, rendering the advisory services in construction sector and selection of construction employees. Such agency could "relieve" the entrepreneurs from searching ( in different ways) of potential employees what is very difficult considering also the duty of current operation of a given company on a competitive construction market.

During the workshops and discussion with the construction sector entrepreneurs we found them as interested in taking the students / graduates to apprenticeships at their companies under the described above conditions.

The success of this project is also increase of the entrepreneurs awareness about the need of upgrading, increasing of qualifications of their employees. That change not only results from our engagement in that project, but also from stable situation in our region economy system. Świętokrzyskie region enterprises in construction-housing sector don't operate in the network of international contacts, thus the world economic crisis doesn't impact in a high level on them. But that market should be very sensitive to new market demands not only in the region, but also to the EU policies and plans directly impacting on construction-housing and education sectors. Prompt and right adaptation of our VET, PES institutions, administration and enterprises to those challenges is our superior goal which should be achieved very soon.

Our project showed the advantages of our regional construction sector and also discovered the obstacles and the elements to be removed or improved in VET system and assurance of smooth development of modern construction-housing branch.

Education programs in construction sector, for new professions, supported with knowledge and experience of experienced persons guarantee the success of vocational education system operation in construction sector only when they are adjusted to the employers and market needs.

The goals described above, supporting the vocational education system in modern construction-housing area, should be directed and charged to a business supporting institution cooperating closely with the entrepreneurs, vocational education schools, self-government and government regional authorities.

CIC "Staropolska" is a regional institution supporting business development, meeting the above demands. Managing of the staff / personnel development in new construction-housing sector VET and PES institutions should be periodically evaluated.

Implementing of the above proposals, conclusions and opinions should also give the positive results in development of our region economy, creating it as more and more competitive in new construction-housing market and assuring the presence on that market the new professionals : energy-saving and passive building construction workers, as well educated and experienced employees in modern construction enterprises.

%%%