



European Construction Sector Observatory

Policy fact sheet

Croatia

CROSKILLS: Energy Efficient Construction &
Renovation Training

Thematic Objective 2

June 2019



In a nutshell

Implementing body	Faculty of Civil Engineering at Zagreb University and the Ministry of Construction and Physical Planning (MCPP)
Key features & objectives	Training and certification provided to construction experts to help address the energy efficiency skills gap in the Croatian construction industry.
Implementation date	2012-2017
Targeted beneficiaries	Six priority building professions (teachers and workers): bricklayers, plasterers, roofers, carpenters, house painters and prefabricated construction fitters. Vocational training providers.
Targeted sub-sectors	All construction sub-sectors (e.g. residential, commercial, industrial, etc.)
Budget (EUR)	Total: 869,041
Good practice	★★★★☆
Transferability	★★★★★

Croatia joined the European Union in 2013. One of the challenges the country faced upon accession was to meet its energy efficiency obligations in line with the EU's 2012 Energy Efficiency (EE) Directive¹ (2012/27/EU) and the EU's Construction 2020 Strategy². The latter strategy identifies construction as a crucial economic sector for EE improvement, both as a means to combat global warming and to improve economic competitiveness. The strategy also identifies the lack of a qualified workforce as a key barrier to achieving EE objectives in the long-term. One initiative seeking to improve construction sector EE skills and qualifications at a European level is the 'BUILD UP Skills Initiative'³.

The CROSKILLS programme was launched by the Croatian Ministry of Construction and Physical Planning (MCPP) as part of the BUILD UP Skills Initiative.

The CROSKILLS programme aimed to address two EE challenges affecting the Croatian construction industry – the need to develop both a vocational training system and a certification scheme to support the growth of EE skills in Croatia.

The lack of EE skills was closely linked to low market demand in Croatia for EE construction. Likewise, the absence of mandatory certifications has not provided the necessary incentive to encourage construction businesses to invest in EE training for their employees. Overall, the issue was more or less being ignored by stakeholders because business incentives were lacking which might encourage stakeholder engagement, interest and investment. Incentives and legal requirements may help to increase domestic demand, as exemplified by the VAT tax cut for residential EE construction in Belgium⁴.

The CROSKILLS training programme was built on two pillars. The first pillar (2012-2013) aimed to identify and scope the skills challenges facing the Croatian construction industry in the field of EE and to develop solutions to address those challenges. It led to the creation of the 'National Qualification Platform' (NQP) – a structure created for the programme to stimulate and channel the discussions among the different stakeholders. This work led to the implementation of the second pillar (2014-2017), where solutions shaped in the first pillar were implemented by selecting a series of training centres to provide pilot training courses for both workers and trainers. Additionally, an ordinance was passed to enable the creation of a certification scheme with a registration system to track the certified training centres, trainers and trained workers.

The programme's impact can be best described as a first step towards the establishment of a dedicated vocational training system on energy efficiency for the Croatian construction sector.

A certification scheme has also been created and a first batch of trainers and workers have been trained in six priority occupations.

In quantitative terms, the programme did not manage to train as many trainers (46% of the initial objective) and trainees (28% of the initial objective) as it had intended to do during the implementation period.

As evidence of its importance to the sector and its potential to deliver upskilling at scale, CROSKILLS is continuing beyond its initial implementation phase; however, the current lack of demand in Croatia for EE is cited as the main barrier to its potential success.

1.

General description

The CROSKILLS programme aimed to create a certification scheme and a vocational training system for the Croatian EE construction sector.

The CROSKILLS programme was divided into two pillars. The first pillar (2012-2013) was a pre-programme stage which aimed to identify and scope the problem. The second pillar (2014-2017) aimed to implement the recommendations generated in the first pillar.

In order to narrow down the pre-identified shortcomings and turn them into a series of actionable tasks, the first pillar carried out two studies. The first study⁵ analysed the Croatian construction industry with a view to providing an improved understanding of the pre-programme situation. It also identified a list of topics requiring further investigation, which formed the basis of a second study, the 'National Roadmap'⁶.

The second report was a tool addressing the lack of debate and connection among stakeholders, which was previously identified as a difficulty facing the Croatian construction industry⁷. The study was carried out by the newly created 'National Qualification Platform' – a networking platform including 64 representatives coming from 54 different organisations. The platform wrote the report and was therefore in charge of clarifying the objectives, proposing solutions and monitoring the implementation of CROSKILLS⁸.

The report identified six priority occupations to be targeted – bricklayers, plasterers, roofers, carpenters, house painters and prefabricated construction fitters. It also designed the methodology for the establishment of the certification scheme and the creation of the vocational training system.

The second pillar implemented the solutions developed during the first pillar following a similar

binary structure divided between the establishment of the certification scheme and the development of the vocational training system.

On the training side, a call for interest was launched to select the training centres to run the pilot trainings. Special attention was given to creating training materials for trainers and to training them in at least one of the six fields of expertise. Some monitors received formation in several occupations.

A series of 53 pilot training sessions were then provided to the target group of qualified or unqualified workers, employed or unemployed alike, as defined during the research stage⁹.

On the certification side, an ordinance was published by the MCPP. The ordinance set the rules for accessing the vocational training but also created a certification scheme with three registers to track certified workers, trainers and centres.

The programme is expected to be expanded to other occupations and to see the size of the training ecosystem increased.

As part of a broader European initiative, the programme was able to benefit from EU funding, in addition to other funding sources¹⁰:

- The CROSKILLS Project, through the Faculty of Civil Engineering of Zagreb, funded the costs of training materials, trial trainings and initial establishment of the training and scheme initiatives;
- The European Social Fund, which co-financed the training costs for workers;
- The participants co-financed part of the training costs;

The Ministry of Construction and Physical Planning provided 'funds in their budget for setting up and applying the principles of green construction'.

2. Achieved or expected results

The certification component of the measure can be considered as a success as a governmental ordinance has already established a certification scheme with the creation of three registers:

1. Certified Workers Register;
2. Certified Trainers Register;
3. Certified Centres Register.

No assessment of the newly created certification system has yet been scheduled, although the planned scale-up is likely to be accompanied by an assessment. However, according to the United Nations Development Programme (UNDP) Croatia, it is already possible to conclude that the certification system has had a positive influence on demand, mainly through increased awareness on the client side¹¹.

The training system component of the measure requires more indicators and time to enable it to be fully evaluated. In total, 21 applications from different training institutions were received after a call for interest was run in October 2016. The call resulted in 12 centres being shortlisted, after which 11 were selected to run the programme. Seven manuals for trainers were created and training was provided to upgrade the expertise of training providers.

In total, 94 trainers were educated in at least one of the 6 priority occupations. Once the 'train the trainers' phase was completed, the shortlisted centres and the newly trained coaches carried out 53 pilot training sessions to train 330 workers using the six training manuals for participants created for the purpose¹².

These results must however be compared with the objectives that were set prior to the programme, as shown in Table 1.

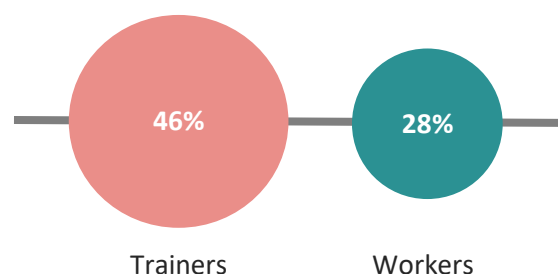
Table 1: CROSKILLS: Impact objectives & achievements

Topic	Objective / Achieved
No. of workers trained and certified	1200 / 330
Licensed Training Centres	10 / 11
Trained Trainers	200 / 91
Training materials created	NA/6 for participants and 7 for trainers

Source: Build Up Skills Croatia and Results Publishable Report¹³

The quantitative indicators demonstrate that in terms of the training objectives, the basis has been set for the establishment of the vocational training system. However, the programme did not manage to meet the training targets.

Share of trainings performed compared to the initial target



Three elements explain the gap between targets and results. Firstly, there is a shortage of construction workers – both qualified and non-qualified – in Croatia, especially since the economic crisis a decade ago. There are also relatively few Croatian students studying towards construction sector occupations at vocational schools¹⁴. Secondly, there is a genuine disinterest in education and training from both employers and employees¹⁵. The combination of these two factors explains why the programme did not meet its quantitative targets. Thirdly, there is a considerable lack of awareness about new practices, both within the workforce and among consumers, according to the Renewable Energies Team Leader at the UNDP Croatia. This has resulted in a lack of incentives on the demand side to encourage upskilling and a lack of understanding on the supply-side of the importance of upskilling¹⁶.

The fact that the programme fell short of achieving its key targets places even greater emphasis on the post-completion stage of the programme as it stresses the importance for the programme to turn a one-shot initiative into a sustainable and durable vocational training scheme after the programme's completion. In other words, reaching the upskilling targets was

not achievable over the course of the project as it requires the implementation of a fully-fledged and durable vocational training system.

Although the programme has generated limited results to date, it will continue, not least because the stakeholders remain convinced of its importance. Indeed, the programme's continuity can itself be considered a positive evaluation of the results achieved so far. The plan for the continued implementation of the programme is outlined in Croatia's Fourth National Energy Efficiency Action Plan (NEEAP), which provides estimates of the post-programme impact objectives and costs, as shown in Table 2.

Table 2: Expected costs and impact objectives

Cost of worker training (2017-2020)	EUR 8,032,000
Individual worker training cost	EUR 400
Trained Workers	20,080
Energy Savings (RES Production) in 2019	150,000 toe
Greenhouse gas emissions decreases in 2019	500,000t CO ₂

Source: Fourth National Energy Efficiency Action Plan¹⁷

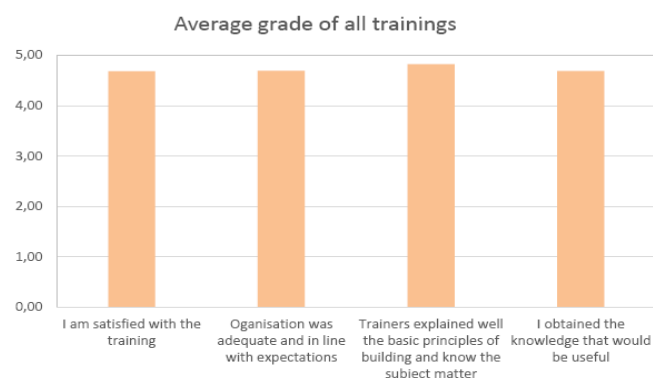
It is important to point out however, that CROSKILLS underestimated the difficulties it would face in trying to reach its objectives.

This suggests therefore that the costs and barriers, as calculated in the fourth NEEAP plan, may also be underestimated and may warrant review. Furthermore, the low number of people trained over the course of the CROSKILLS project will probably make the project's vocational training targets very difficult to achieve within the specified timeframe and budget, as there are simply not enough qualified coaches to train the workforce. Whereas this does not mean that the quantitative objectives are unattainable, it is likely that more time will be needed to achieve them, and that implies a higher cost.

In addition to the fourth NEEAP, the CROSKILLS final reports add recommendations such as legal modifications to be made in order to maximise the impact and success of the new training programme. Thus far, these next steps have only been theoretically defined, with no concrete actions having yet been undertaken.

Two indicators allow us to provide qualitative insights on the outcomes of the training courses. Firstly, as shown in Figure 1, a satisfaction survey was conducted among participants, showcasing a high level of satisfaction (4.68/5) with the quality of the training provided¹⁸.

Figure 1: Results of the training satisfaction survey



Source: Results Publishable Report¹⁹

Secondly, an external study was carried out to assess the quality of the training provided. While seemingly satisfied with the overall training, it identified several important shortcomings in the training programme, especially in the renovation segment. Not only are the advantages of renovating not really presented but the learning outcomes in terms of 'Deep Energy Renovation' are obsolete and inadequate²⁰. Furthermore, the training does not satisfyingly cover all levels of the European Qualification Framework (more specifically levels 3-4 (semi-qualified and qualified workers) and 6-7 (highly qualified workers) should be further strengthened). The study also recommends improvements to the training facilities and the development of audio, video and visual aids²¹.

Another missing element in the curriculum is the absence of renewable and alternative energies. According to the UNDP, the implementing and partnering institutions suffered from a lack of knowledge and competencies in the field of renewable energies which led to the topic being left aside²². The use of alternative energies, for example, is an important consideration in the quest to achieve ambitious EE targets. In the medium-term, that means that the curriculum will have to be extended to incorporate these activities.

CROSKILLS is a positive step in the right direction; however, the limited number of trained workers and the gaps observed in renovation training remain important challenges that need to be addressed if the programme is to achieve its desired impact.

Although there is a dedicated structure in place to monitor the programme, which includes the National Qualification Platform and the 'Investment Monitoring Centre' (which is a Croatian institution in charge of monitoring EE policies), there is a need to clearly define monitoring indicators for the CROSKILLS programme

and the following post-completion phase. It is mentioned that these indicators will be defined to assess the impact on energy savings to inform stakeholders, but they are not yet available²³.

The UNDP Croatia²⁴ makes the point that the positive impact of CROSKILLS cannot be restricted to the number of trained workers and trainers. Rather, it should be extended to consider other important achievements such as the modernisation of the curriculum, despite

some remaining gaps. More fundamental is the creation and animation of the National Qualification Platform: this allowed everybody to be on board with common views to define both problems and solutions. In light of the Croatian context, which features a highly unqualified workforce and a lack of both customer awareness and a vocational training culture, the platform delivered by CROSKILLS was a crucial and decisive achievement.

3.

Perspectives and lessons learned

The CROSKILLS programme adopted an encompassing approach and therefore involved a wide variety of players, brought together in the National Qualification Platform. Three types of stakeholders were involved²⁵:

- Authorities: ministries and state agencies, local government and educational institutions and organisations;
- Professional associations and interest groups: unions, energy associations/NGO, other relevant associations;
- Construction industry: producers and contractors.

From an implementation (authority) perspective, according to the employment services, CROSKILLS is a very positive move in the right direction as it overcame most of the barriers that were identified and assessed prior to the project: the lack of trained educators, the financial obstacles, the legal obstacles and the training curricula. However, more needs to be done to provide the construction market with sufficient numbers of skilled workers²⁶.

The training infrastructure developed by CROSKILLS is the initiative's main strength, as it provides the platform and structure to enable workforce upskilling at scale. The relatively low number of workers trained during CROSKILLS, on the other hand, when compared to its objectives, is the initiative's main weakness. Despite producing some mixed results, the initiative should be considered overall to have been broadly successful. The training infrastructure is fundamental to the overall goal of upskilling the workforce and its delivery is a key success factor. The number of trained workers targeted was arguably not realistic during the implementation period; however, the infrastructure is in place to enable training delivery to be scaled up in the post-implementation phase.

A key lesson learned from CROSKILLS, according to the University of Zagreb, is the need to stimulate the

demand side in order to increase the participation rate. Although awareness campaigns were organised, they were not as effective as hoped. Workers did not sufficiently engage in training activities because it required an investment in time and resources that would need to be justified by consumer demand for EE products. The lack of a continuing education culture in the Croatian construction industry is undeniable; however, the main impetus for change will have to come from the consumer side. Growth in demand will then provide the necessary incentive for upskilling on the supply side²⁷.

The **professional association perspective** is similar to the authority perspective. However, the Croatian Employer's Association (CEA) also points out that other challenges remain which were not addressed in the CROSKILLS initiative. In particular, they say that nearly all sub-sectors of the Croatian construction industry are lacking a properly trained workforce.

The CEA highlights the importance of implementing CROSKILLS and similar initiatives as part of a larger set of reforms, as there are broader issues that need solutions to enable an initiative such as CROSKILLS to be truly successful.

For example, the low salaries on offer in Croatia lead to high numbers of construction workers leaving the country in search of better employment opportunities abroad. To encourage qualified workers to stay in Croatia, salaries would need to increase by at least 50% and legislation would need to be put in place to prevent foreign companies from taking advantage of the situation and taking over the domestic market²⁸.

The **industry perspective** can be viewed from two different angles. From a manufacturing perspective, there is an interest in selling good quality EE materials²⁹. Saint-Gobain, a multinational producing and supplying high-yield building materials, says that creating demand for EE materials requires a

qualified workforce that is able to use and install those materials³⁰. This explains why Saint-Gobain donated innovative materials, through its Isover subsidiary, to CROSKILLS³¹. Although CROSKILLS has not yet managed to produce a trained workforce at the scale needed to increase current demand for EE, it has laid the groundwork for a successful implementation of the future vocational training system which is expected to lead to an increase in demand for EE materials. This expectation explains why a manufacturer such as Saint-Gobain maintains a strategic interest in the CROSKILLS initiative.

The most striking element from the perspective of contractors and workers is their apparent lack of interest in the CROSKILLS initiative.

The principal of the Čakovec School of Building and Crafts³² and a professor at the Faculty of Civil Engineering at Zagreb University³³ both say that the initiative found it difficult to attract sufficient

numbers of construction workers to participate in the training courses. In fact, the employment services even go as far as saying that the lack of interest shown by workers and contractors is a risk that could jeopardize the entire project³⁴. This once again emphasises the importance that demand plays as a key success factor for an upskilling initiative. Workers and contractors will consent to investment in upskilling only if sufficient business incentives exist to make the investment worth the cost.

The CROSKILLS programme was also linked to the introduction of the certification system which aimed to boost the demand side. According to the UNDP, although this has already had a positive influence on demand, it remains insufficient to date, demonstrating that more time is required for the certification system to achieve greater impact and that additional measures are needed to stimulate demand.

4.

Conclusions and recommendations

The CROSKILLS programme's main achievements have been to lay the foundation for a national vocational EE skills training system and certification scheme. The programme can therefore be seen as a successful first step, however, greater effort is needed to deliver real and lasting impact.

During the implementation period, the training programme did not manage to achieve its target of 1,200 trained workers and 200 trained teachers. It can be argued that these initial targets may have been overly optimistic, and that vocational education may need to be rolled out over a longer timeframe to deliver significant results. It is also true that the programme has only covered six priority occupations in its initial phase, and that more coverage is needed to achieve greater impact across the sector. However, the programme's inability to meet its quantitative objective in terms of trained workers and teachers does raise a question mark over the future of the project, which is intended to extend its scope to include additional occupations, as well as scaling up training delivery to those professions already targeted. The objectives of this part of the programme remain attainable. The discrepancy between initial objectives and achieved results however suggest that higher expenditure will be required for the scaling-up phase. For example, more effort in marketing and professional orientation for students is likely to be necessary but is not yet budgeted for.

The other key component of CROSKILLS saw the creation of the national qualification platform, which was a clever way of integrating the different stakeholders within a solid framework to encourage them to monitor, provide feedback and guide the action. It has helped to bring Croatian construction industry stakeholders together to discuss energy efficiency. Looking forward, the

important range of stakeholders involved in the platform will help to facilitate future initiatives and measures.

The continuation of the CROSKILLS programme is evidence of its importance to the Croatian construction sector, in spite of it not meeting some key objectives in the initial implementation period. It is expected to cost EUR 8,032,000 over the four-year period between 2017 and 2020; however, it is likely that the final cost will be higher, as some elements that will be required have not yet been budgeted for (e.g. marketing and professional orientation activities).

Ultimately however, the long-term success of CROSKILLS will depend on its ability to help generate sustainable market incentives for EE skills training. It is clear that more work is needed to further develop the CROSKILLS training programme and to extend the results and impact achieved so far. However, additional measures are also needed to incentivise the EE market in Croatia. Solutions are needed to increase domestic demand for EE and, by extension, EE skills training in the construction sector. Possible measures that should be considered include tax incentives and/or legal requirements for EE in new construction projects.

There is also the potential to extend the CROSKILLS programme to provide skills training in other areas of strategic interest to the Croatian construction sector, such as the use of renewable energies in construction. Training should begin by focusing on the value, installation and use of small and medium-sized appliances, such as heat pumps and solar panels, and could then be extended to cover other types of technologies, such as wind energy. As was the case in the CROSKILLS programme for Energy Efficiency, a new/updated certification system would be needed guide the installation of renewable energy appliances. According to the UNDP, the current certification scheme was developed under the influence of lobbies to suit

their own interests. Their involvement played a significant part in the absence of a renewable energy market in Croatia. The technical requirements were set at an unrealistically high level, for example, requiring renewable energy appliance installers to demonstrate five years of experience in renewable energy installation work. As a result, the certification system became a barrier for the development of demand for renewable energy, instead of an enabler³⁵.

Overall, CROSKILLS is rated as a '3 star' 'good practice' measure, using a scale of 1 (low) to 5 (high). This scoring is based on a number of reasons. On the one hand, for example, the programme has successfully developed a vocational training system that provides the foundation for training delivery, which has been piloted during the implementation phase and which can be built on in the future. On the other hand, however, CROSKILLS significantly underachieved in terms of its training delivery objectives – training just over 25% of the target number of trainees and just under 50% of the target number of trainers. This measure does however have the potential to achieve a higher star rating on the 'good practice' scale if training delivery is significantly scaled up in the post-implementation period.

CROSKILLS serves as an example of how to develop a vocational training system from scratch

and therefore provides an interesting case-study for other countries that are interested in developing their own system.

The CROSKILLS concept and programme are considered to be highly transferable, with a score of 5 stars, to countries and regions that are facing similar issues to those experienced in Croatia. Those issues include the high number of young adults seeking work abroad and a lack of workers and skills in the domestic construction industry. CROSKILLS is structured in clearly defined and inter-related phases that provide a logical workflow, from analytical work to assess the EE training needs of the industry and workers and to scope the appropriate training solutions, to the creation and implementation of a national stakeholder platform and a training infrastructure and programme.

CROSKILLS is also part of the broader European BUILD UP Skills (BUS) Initiative which has helped to support the creation of upskilling programmes in a range of EU countries. The sharing of knowledge and learned experiences across countries and between initiatives is a central element of BUS. The CROSKILLS experience and the lessons learned during implementation are therefore part of a broad portfolio of experiences that other countries can take advantage of when exploring upskilling solutions for their own domestic workforces.

Endnotes

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- 15 Interview with Kristina Fleischer, Senior Expert for Employment services.
- 16 Interview with Robert Pasicko, Renewable Energy Team Leader for the UNDP Croatia.
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- 33 Interview with Ivana Banjad, Professor at the Faculty of Civil Engineering at Zagreb University.
- 34 Interview with Kristina Fleischer, Senior Expert for the Employment services.
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