

*PROJECT "THE4BEES-TRANSNATIONAL
HOLISTIC ECOSYSTEM 4 BETTER ENERGY
EFFICIENCY THROUGH SOCIAL INNOVATION"*

***WPT5 "Evaluation of results and improvement of
policies"***

O.T5.1

MODELS AND RECOMMENDATIONS FOR
IMPROVEMENT OF POLICIES

Introduction

The policy recommendations dossier (D.T5.2) is one of the main deliverables of the THE4BEES Project. Together with the report summarizing the evaluation of results of the CCLabs (D.T5.1) it represents the most complete overview on the activities carried out within the project, the achieved results, the expected impacts, the gained knowledge and the recommendation for the next future. While the report from the pilot activities is more focused (even if not exclusively) on the concrete activities and the quantitative results, the policy recommendation dossier deals more with the production and the exchange of knowledge. However, as exposed below, the knowledge produced and exchanged during the project's life and, above all, its strategic use for the future (the so-called policy recommendations) is, in many cases, strictly connected to the activities developed within the project. This is the reason why, in this document, the "policy recommendations" are preceded by the "lessons learned": even if we distinguish between "lesson learned", that lead to a more operational recommendations, and some more strategic "policy recommendations", the two concepts were included in the same conclusion chapter since there are several overlapping aspects between them. At any rate, the policy recommendations and the report summarizing the evaluation results of the pilot projects (CCLabs) can be seen as two complementary documents.

As explained, this document distinguishes and, the same time, establishes a connection between the concepts of "lesson learned" and "policy recommendations". Sometimes the boundaries between the two concepts are not well-defined and incontrovertible: according to this vision, sometimes we can consider the distinction as conventional or discretionary. If the discontinuity elements between lesson and recommendations are rather intuitive and refer, that is, to an operational and a strategic dimension respectively, the connections deserve a more articulate explanation. Based on the link between project activities, reference is made here to the "lessons learned" as a connecting element between these two dimensions, an element that is in some way preparatory to the formulation of the recommendation themselves. The lessons learned are understood in a broad meaning, not limited to the concept of feedback proper to the project cycle management. It is an aspect of difficult formalization, with an unavoidable character of subjectivity.



In this chapter some ideas are extracted and extrapolated from interviews to people responsible for pilot activities. Since, in order to prevent the respondents from influencing each other, each of them was individually consulted and individually expressed their opinions, there was not always unanimity of views regarding a particular problem or its possible solution. At the end of the project, in consideration of all the outcomes of CCLabs and trials, experiences and results have been the subject of discussion among the partners in order to summarize the diversity of sensitivity and perception that, physiologically, are related to a plurality of points of view. There is in fact a strong convergence of opinions on numerous points: these are largely open questions already known and often referred to by the policy recommendations expressed by previous EU funded projects, confirming the fact that THE4BEES project does not claim to revolutionize existing knowledge in the field of energy consumption and behavioural change, however already well established in spite of the taxonomic difficulties encountered in the attempt to circumscribe the universe of these topics. As mentioned several times, THE4BEES represents an experiment in supporting end-users for energy consumption reduction through IT tools, an experiment which, rather than producing the recommendations of policy makers ex-novo, puts into practice - and at the same time tests - existing guidelines and recommendations, with a view to improving them further and, where necessary, redirecting and adapting them to the context.

All these considerations, of course, do not change the fact that some policy recommendations did not emerge from the project activities but from a more general analysis of the situation or from the observation of practices, even in other fields.

The chapter on the lessons learned is followed by an anthology of the policies of each partner region in the field of energy efficiency and behavioural change. The reason is simple: the analysis of the policies represents a significant production of knowledge by each partner. From this point of view, the analysis of the policies is both, in a way, a lesson learned and a necessary premise to formulate any kind of suggestion or recommendation. The analysis has been very helpful and important to help and sustain energy efficiency and behavioural changes in the Alpine Regions. As mentioned above we found several commonalities among the different countries. In particular, strong attention to climate change is paid. In addition to that, strong attention to more entrepreneurial aspects has been recognized as very important as well. Financing is not one of the main critical issues, instead it seems that a general collaboration between SMEs, stakeholders and public institutions can be more effective in terms of value recognition of behavioural changes.

Lessons learned

Premise

Communication skills have been one of the major limitations to the relationship between institutions, stakeholders, technicians, energy managers and CCLabs. Often these actors use, if not different languages, different communicative registers. For this reason, we consider important to recall in this section a matter that, although it has not been subjected to specific analysis, requires in-depth considerations in terms of attention and practice. Each partner carried out an analysis of what are the main needs of CCLabs, and each partner followed different strategies to accomplish the analysis. In the following pages we are going to sum up the main results, trying to highlight in the conclusions the commonalities which were found.

Analysis

A general difficulty in achieving the target has been encountered, specifically for the real-time measurement of data and for the participation of the end users. Not all partners have had such difficulty in obtaining a large participation anyway, for those who have experienced these problems, one of the weakest points has been that related to the communication of their actions to the public.

The need for these kind of activities is judged as very important in each country partners. The co-creation is a good way to stimulate awareness raising and, following, behavioural changes. In addition to that there is the networking issue which is referring both to the connection with students and enterprises working in IT sectors as well. Suggestions emerged from the CCLab meetings conducted are about the organization of events, meetings and places where to exchange ideas and information with other people. The need of competencies for a better understanding of the dashboard and for the right behaviour to have in reducing energy consumption was stressed as well.

Even if financial support is not the most quoted need, it has emerged in the research about needs carried out by each partner. This need can be satisfied in different ways, such as creating specific funds for energy efficiency, rewards for virtuous behaviours, discounts on bills, or creating a more general entrepreneurial friendly system.

One of the basic needs highlighted is the chance to openly talk with public institutions. Private actors in the field of energy efficiency, as well as energy managers and tenants of public buildings, ask public administrations to raise the awareness for the importance of the reduction of energy consumption. This is considered as helpful in several ways, for climate change mitigation or for comfort and healthy way of life, not only as an element that would lead to cost reduction.

Participants of the CCLabs (mainly tenants or users, as people in schools, workers in public buildings and citizens) do not have, in general, enough time (but also specific skills) to deal with the burden of complicated administrative procedures. Institutions still present too much bureaucracy and a lack of vision in the medium/long term.

An important element for a successful cooperation among technicians, energy managers and users has been the dialogue over time. A direct and trusting relationship helps everyone and makes them feel involved and a decisive part in the

success of the project. The creation of a friendly environment is very hard and complicated to obtain, however is based on what have been identified as hard and soft factors, which can be viewed as the sum of the issues listed above plus more intangible elements, such as life style, the presence of a vital social community, diffusion of different ways of thinking, composition of population, workplaces, entertainments, the quality of life in general.

This analysis can be very helpful and important to sustain energy efficiency and behavioural changes in the Alpine Regions. As mentioned above, the project identified several commonalities among the different countries. In particular, all of the involved communities pay strong attention to climate change . In addition to that, strong attention to more entrepreneurial aspects has been recognized as a very important element for the success of the activities.

Overall, funding is not considered as one of the main critical issues, instead it seems that a general collaboration between SMEs, stakeholders and public institutions can be more effective in terms of value recognition of behavioural changes.

Lessons learned from the CCLabs and trials

The first and important lesson learned is the need to understand the real requirements of users. Most users are interested in reducing cost in their bill, instead of talking about saving energy. The term “energy saving” is too abstract for many people to know what it really means, and generally people seek to improve their comfort before reducing their consumption (the dashboard’s features that directly address the comfort of users have been the most appreciated and used). However, young people in general are very well informed and willing to do the right thing in terms of energy efficiency and environmental protection. It is important to use participative methods, and take into account the input of people: to consider users' preferences before trying to force behaviour changes that do not satisfy them.

It is necessary to open the discussion in the users group when there is a difference of opinion on the behaviour to be applied.

As a second consideration, data need to be shared to be helpful. Opening data shows a will for transparency, participates to the energy education of all the users, and brings about great discussions or ideas. Therefore it is important to choose the appropriate channel to share the information with the different users and to dedicate the right time define which data are to be displayed and how (easy to understand, user-friendliness). Once data are shareable, the step is to organize participative events where everybody can understand stakes, ask questions, offer input. Actions designed with a co-creative approach have a greater chance of being accepted with enthusiasm than top down initiatives, especially when they concern users' behaviour.

From a technical point of view, there is a strong interest and support for learning about electronics and IT. The common technical issue appeared in the project trial phase is wireless solution, but such technical solutions have to be really stable in order to be able to transmit data in real-time. Within the activities the pilot coordinators experienced all sort of problems deriving from the nature of monitoring systems on different levels and on platforms. Sensors needed extra effort to be setup, and transfer data to the smart data platform.

It takes as much effort to develop the IT tool as it does to get participants interested in using it. Sometimes considered as gadgets, these devices are real work tools. Data have been generally reliable, but the system requires constant attention to function properly. It also requires constant checks with semi-professional data loggers and periodical calibration to mitigate the effect of the measurement errors. Any future attempts should focus on installing systems that minimize the need for human intervention, so as not to be vulnerable to changing priorities of the management authority.

For educational purposes, the existing setups on Arduino and Raspberry are the perfect choices. However, the developed solutions are not recommended in permanent applications for proper monitoring systems. Very precise and reliable sensors are required in order to achieve and validate energy savings at the same time of guaranteeing high indoor air quality. In the specific instance of the project, some readouts had to be carried out manually by students engaged in the project.

With regard to the involvement of students as target group, the adopted CCLab methodology was effective but difficulties emerged in the adaptation to different contexts. For example, the time constraints of schools and the meteorological conditions of the alpine huts lead to a prolonged development phase. Moreover, in the

case of the Piedmont pilot, the students who developed the solutions were not the ones who tested it during the trials and this led to a minor acceptance of the tools. It is also important to arrange meetings at school in the last 2-3 weeks before the school holidays only as this is often a period in which teachers can arrange time to be used for workshops.

Workshops need to be highly interactive: it is important that the students are involved in every single step of the project in order to have a complete understanding of the topic of energy saving, and the workshops need to be adapted for the specific emphasis of the school type (e.g. technical, social, natural sciences). But, at the end, education through co-creation is very effective and should be systematically integrated in the formal learning curricula

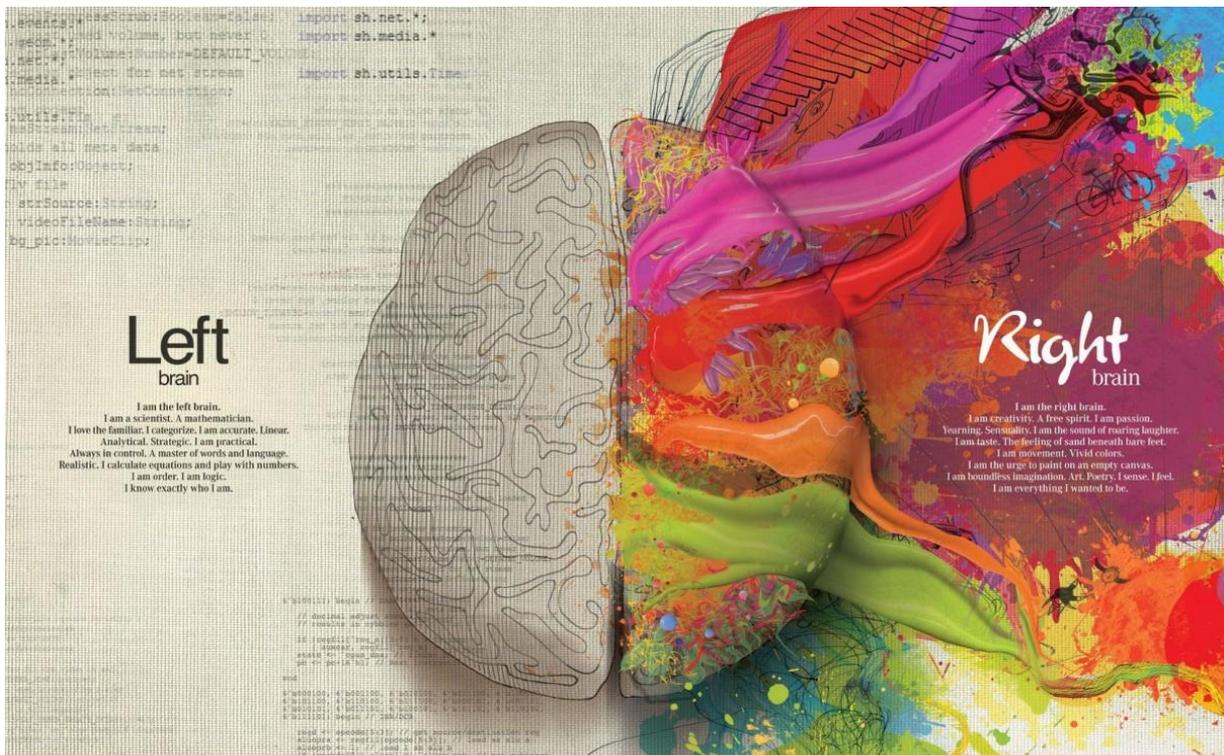
Lastly, one of the most significant experiences is linked to the idea of collaboration and dialogue with different realities, especially for students, out of the school, gathering new social competences. Having relationships and comparisons on such an important topic with energy and the environment has allowed students to verify that being European also means making a contribution to improve and grow together. The more the students are directly involved in the work, the more they like the idea of being part of an international project!

Recommendations

BEHAVIOURS ARE A PRIORITY COMPONENT OF ENERGY SUSTAINABILITY: it is possible to change energy behaviours but the approach must be content specific and actively involve the final users. Begin from motivating factors: COMFORT is more important than savings, HEALTH is a strong motivating factor...

THE FOCUS ON BEHAVIOUR IS COMPLEMENTARY TO OTHER INTERVENTIONS: a mix of soft and structural aspects with a medium/long term vision could lead to success. A low-cost monitoring system, for example, is excellent for user involvement. And with IT, it's even better! It could be difficult to evaluate change but the added value is the interaction: user feedback is essential but with realtime data from IT tools.

IT TOOLS ARE A VERY POWERFUL MEANS TO INVOLVE USERS: the bottom-up approach requires specific resources and different technical competences. The dashboard is for technicians, but the display attracts attention, it works for awareness raising. However, there are plenty of monitoring solutions and apps available on the market as well and it is not worth running after the app market. Perhaps the best solution is a mix of the two, identifying a clear framework and threshold values for the most sensitive data.



Policy recommendations

OVERVIEW OF COLLECTED INFORMATION

The data and information collected by project partners covers a total of 39 policy instruments.

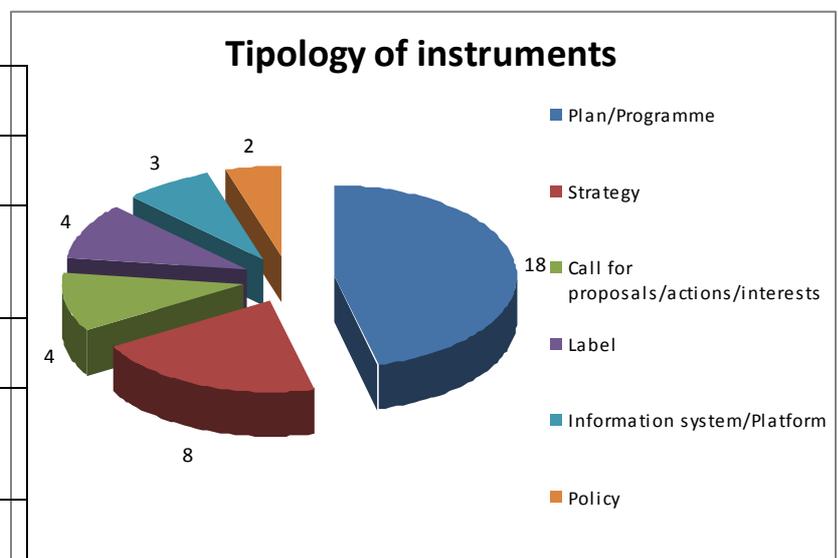
NAME OF THE POLICY/PROGRAMME/INSTRUMENT	PROMOTING ORGANIZATION	DECISIONAL LEVEL	COUNTRY
Strategy Klima- und Energiestrategie Salzburg 2050	Federal State of Salzburg	REGIONAL	Austria
Policy Masterplan Klima + Energie 2020	Federal State of Salzburg	REGIONAL	Austria
Regional spatial planning plan SRADDET	National Government	NATIONAL	France
Territory spatial planning plan SCOT	National Government	NATIONAL	France
Local spatial planning plan PLU	National Government	NATIONAL	France
Local action plan on housing PLH	National Government	NATIONAL	France
Local action plan on transportation and urban mobility PDU	National Government	NATIONAL	France
Local SEAP PCAET	Auvergne Rhône-Alpes Region	REGIONAL	France
Local action plan on energy TEPOS	Auvergne Rhône-Alpes Region	REGIONAL	France
Local action plan on energy TEPCV	National Government	NATIONAL	France
Local action support on housing renovation PTRE	National and Regional Government	NATIONAL	France
Regional policy on Eco-friendly highschoools	Auvergne Rhône-Alpes Region	REGIONAL	France
Eco-schools	National Government	NATIONAL	France
The law for a digital Republic	National Government	NATIONAL	France
Sustainability Strategy Baden-Württemberg	Baden-Württemberg Region	REGIONAL	Germany

(Nachhaltigkeitsstrategie Baden-Württemberg) – longterm strategy			
Regionwide competition “Leitstern Energieeffizienz Baden-Württemberg”	Baden-Württemberg Region	REGIONAL	Germany
Support programme “climate protection plus” (Förderprogramm Klimaschutz-Plus)	Baden-Württemberg Region	REGIONAL	Germany
Federal state strategy Green IT 2020 in public administration Baden-Württemberg	Baden-Württemberg Region	REGIONAL	Germany
Regional Environmental Energy Programme (DGR no. 3706 of 12 June 2015)	Lombardy Region	REGIONAL	Italy
Alpin Technological Platform	Lombardy Region	REGIONAL	Italy
Guidelines - for environmental education (Linee Guida per l'Educazione Ambientale)	Lombardy Region	REGIONAL	Italy
Environmental sustainability strategy for Community Programs 2014/2020	Lombardy Region	REGIONAL	Italy
ERDF ROP, Axis 4 Sustainable Energy and Quality of Life, Priority b	Piemonte Region	REGIONAL	Italy
ERDF ROP, Axis 4 Sustainable Energy and Quality of Life, Priority c	Piemonte Region	REGIONAL	Italy
Regional Environmental Energy Plan	Piemonte Region	REGIONAL	Italy
Operational programme for the implementation of the EU cohesion policy 2014 - 2020	Slovenia	NATIONAL	Slovenia
Operational program for limiting greenhouse gas emissions 2014 - 2020	Slovenia	NATIONAL	Slovenia
Long Term Strategy for Mobilising Investments in the energy renovation of buildings	Slovenia	NATIONAL	Slovenia
National energy efficiency action plan 2014–2020	Slovenia	NATIONAL	Slovenia
National renewable energy action plan 2010 – 2020	Slovenia	NATIONAL	Slovenia
National plan for increasing the number of nearly zero-energy buildings	Slovenia	NATIONAL	Slovenia
Municipal programme for environment protection 2016-2020	Municipality of Velenje	LOCAL	Slovenia
Sustainable urban strategy of the Municipality of Velenje	Municipality of Velenje	LOCAL	Slovenia
Sustainable energy action plan of Municipality of Velenje	Municipality of Velenje	LOCAL	Slovenia

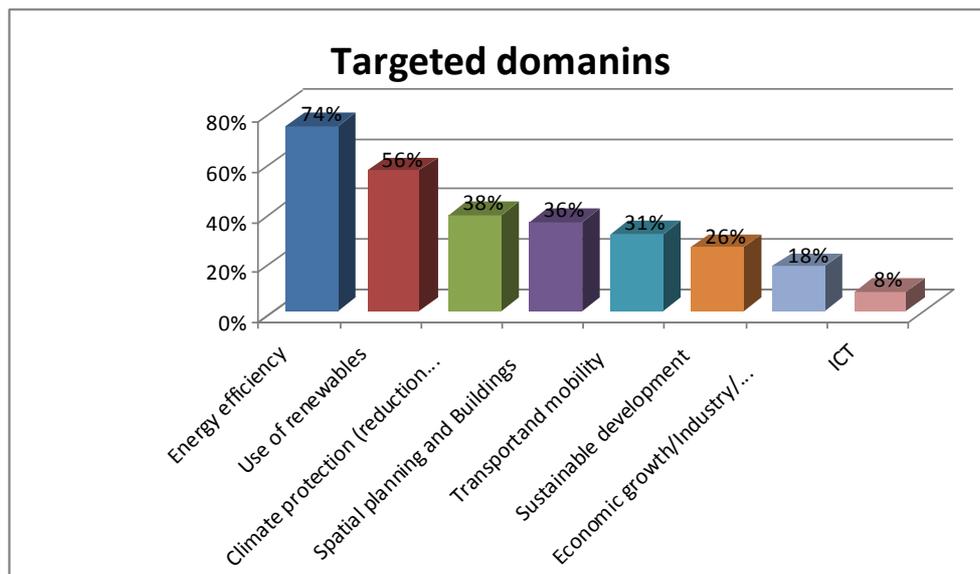
Local energy concept of Municipality of Velenje	Municipality of Velenje	LOCAL	Slovenia
MoPEC (Modèle de prescriptions énergétiques des cantons)	Switzerland	NATIONAL	Switzerland
SME model and Energy model for large energy consumers	Switzerland	NATIONAL	Switzerland
Minergie	Switzerland	NATIONAL	Switzerland
Cité de l'énergie	Switzerland	NATIONAL	Switzerland

Most of the policy instruments analysed are implemented at national (19) or regional (16) level. They are mainly represented by Plans and Programmes, followed by regional Strategies. Overall general Policies mapped in the exercise are only 2.

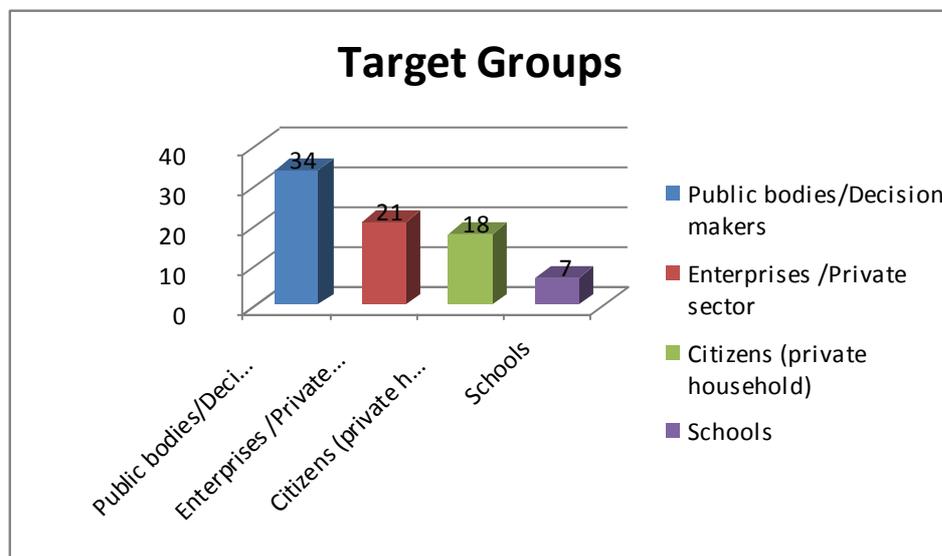
Plan/Programme	18
Strategy	8
Call for proposals/actions/interests	4
Label	4
Information system/Platform	3
Policy	2
TOTAL	39



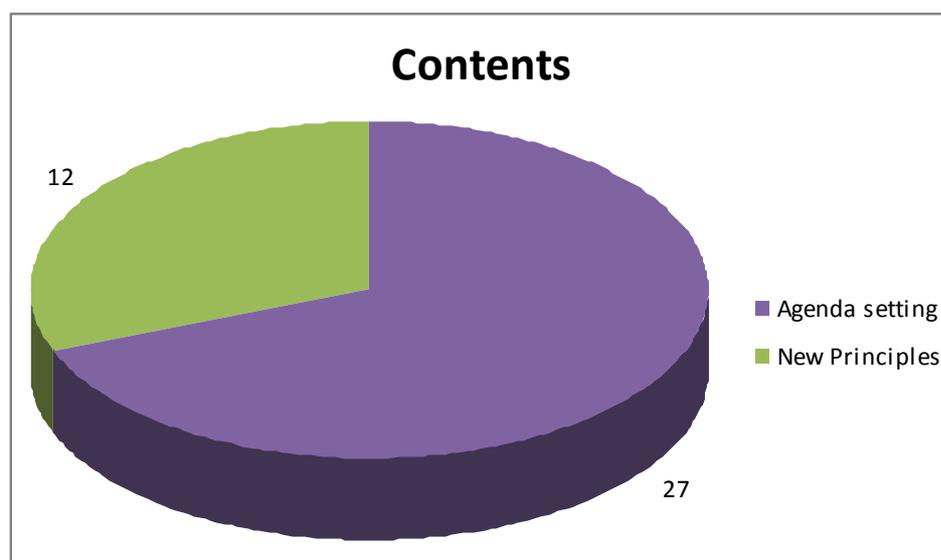
As expected, the majority of policy instruments directly target energy efficiency (29 out of 39). Promotion and support to renewable energy usage is addressed by 22 policy instruments. It is interesting to notice that 7 analysed instruments refer to economic growth or industrial development and competitiveness promotion, while addressing the issue of energy and sustainability.



Regarding target groups, public bodies and decision makers are addressed by 34 policy instruments, followed by the private sector (21) and citizens (18). Since most partners have chosen schools for the CCLabs implementation, also 7 policy instruments that addressed schools have been mapped.



In the perspective of policy improvement, some additional elements have been analysed. First of all, the typology of contents that characterize the policy instruments mapped. The majority (27 out of 39) renew the existing policy agenda, by fixing, establishing or defining “actionable” objectives, targets, etc. and selecting appropriate instruments to meet the set specific objectives. 12 policy instruments otherwise fix new principles, and try to inspire the adoption of new concepts/values/ organisational thinking/etc. (like Circular/Blue economy, Internet of things, “territoires à énergie positive”, etc.).



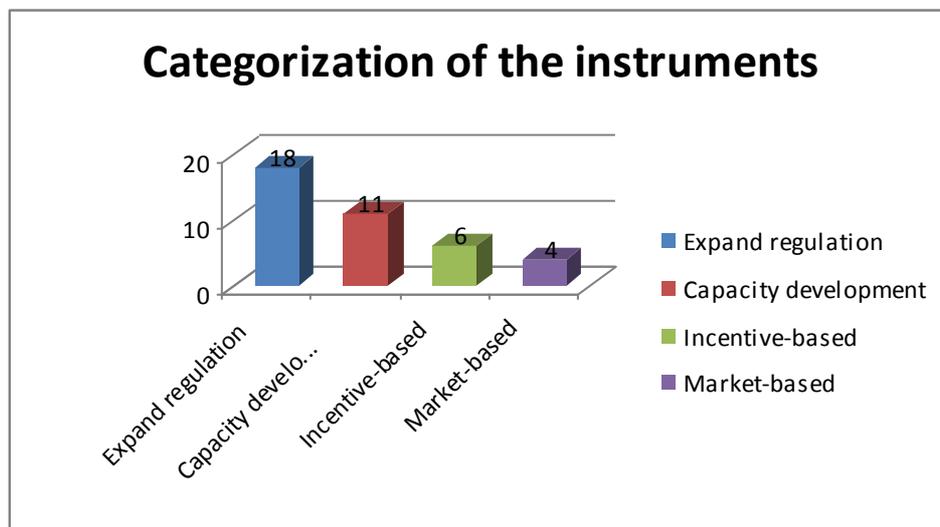
The analyzed policy instruments have also been categorized in 4 broad policy groups, according to the contents or measures provided:

- Expand regulation policy (provide new or increase existing regulations)
- Incentive-based policy (provide incentives to induce a change)
- Market-based policy (target the market or produce effects on markets)



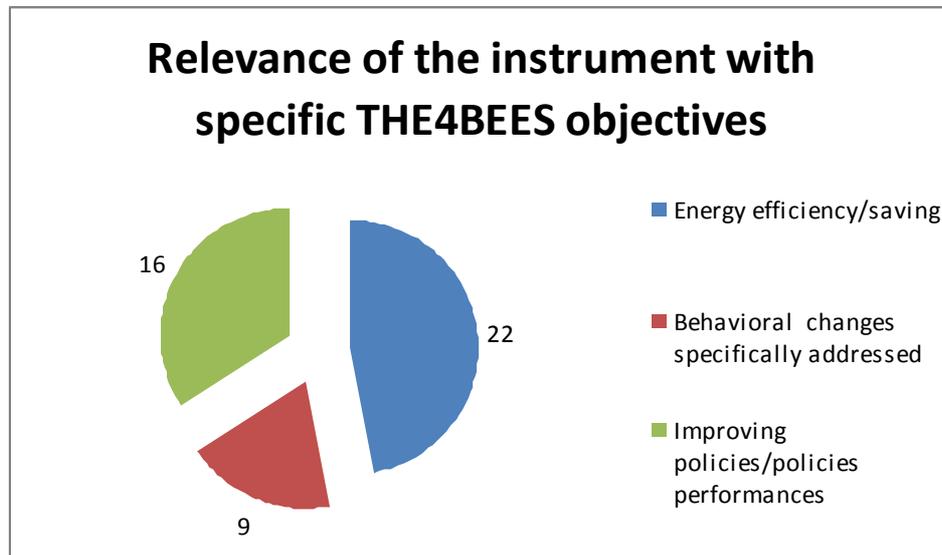
- Capacity development policy (Policies refer to strengthening the skills, competencies and abilities of people, communities, public bodies, so they can to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions).

The graph shows the results obtained. 18 out of 39 expand existing regulation. Interestingly 11 instruments aim at increasing and developing capacities, skills and competences.



Since the analysis of policy instruments is functional to general policy improvements in the framework of THE4BEES project, the objective of the policies instruments mapped was matched with the 3 project specific objectives: energy efficiency/saving, behavioural changes specifically addressed, improving policies/policies performances

As the graph shows, 22 policy instruments pursue energy efficiency and are mainly related to THE4BEES objective of improving energy efficiency and energy savings. 16 aim at improving policy performance through new instruments, strategies, measures, etc. 9 specifically mention and address behavioural change.



GENERAL FINDINGS AND RECOMMENDATIONS

Sustainability and energy/resources conservation is a process. What happens on the ground will change over time as user behaviour changes, space and building utilization shifts, organization needs evolve, etc.

This exercise implemented through THE4BEES project, showed us the integrated and interacting sets of behavioural issues that are key to achieving energy efficiency in different kind of buildings. It has shown that, at many levels, the people who own, manage, inhabit, and use buildings determine the extent to which sustainability and building performance goals are achieved.

WPT5 in particular has highlighted the importance of institutional context and outlined the policy framework components of that context. It has also described a variety of methods available to initiate and sustain lasting change, along with the evidence that supports their use in different circumstances.

Taken as a whole, THE4BEES experience provides an interesting perspective on strategies and potential opportunities for the entire Alpine region. Its “systems

perspective” of occupant-use behaviours should support organizational transformation in support of sustainability and reduced resource consumption that is significant, persistent over time, and able to be measured, evaluated, and documented.

Following are some general models and recommendations for implementing an action-based framework for changing individual and organizational use behaviours, achieving sustainability and building performance goals.

1- Adopt a systematic perspective to assess, design, implement, and evaluate sustainability and energy use strategies and programs as integrated technological and behavioural activities can be a successful element.

Behaviour change in buildings encompasses policymaking regulation compliance, reinterpretation or revision of operating procedures, infrastructural change and individual actions.

Behaviours that affect building performance are supported in part by specific building characteristics and requirements. The use of an integrated IT system support individuals and managers in their choices. Regarding policy instruments, they should modify applicable characteristics, and requirements in support of new behaviours that are consistent with sustainability objectives.

2. - It is recommendable to employ multiple methods and strategies that are supported by scientific research or established practices as effective and aligned with specific sustainability goals.

The methods and strategies supporting new behaviours serve different purposes and should be tailored to specific workplaces, residential building, etc. and time frames. Employing multiple strategies instead of single, stand-alone strategies can better engage individuals and organizations possessing different motivations and responsibilities in the short and long terms.

3. - Promote an enduring institutional transformation by engaging policy and decision makers work best to build a culture of sustainability.

Behavioural and institutional changes are means to achieve sustainability goals, rather than ends in themselves. In creating a sustainability-oriented culture, people in their various organizational roles expand on current activities and devise new strategies for conserving resources and improving sustainability goals.

4. - To sponsor social science research and social “experiments” like the CCLabs builds the evidence base for behavioural and institutional strategies aimed at saving energy, water, and materials, and at operating buildings sustainably over the long term.

These research and experiments should include carefully designed studies that incorporate monitoring and measuring, by collaborative teams of user, scientists, technicians and policy makes in a realistic time spam, with periodic evaluations of the efficacy and persistence of institutionalized changes.

SOME INSIGHTS REGARDING THE4BEES MAPPED POLICY INSTRUMENTS

This section points to some of underdeveloped aspects, recommending that policy makers and programme managers pay more attention to them while deciding on and implementing policies, projects and programmes.

Many considered policy instruments do not take into account the energy whose consumption is user-mediated and consequently do not address user behaviour.

A more detailed segmentation in the definition of target group would make it possible to tailor activities to specific segments of a target group. In many analysed policy instruments this aspect is still underdeveloped and target groups are set in broad categories. Specific target groups should be carefully selected so that activities can be specifically set for the behavioural changes that are required for a specific group, rather than sticking with a generalist approach.

Many policy instruments do not apply clear a theoretical basis, making it hard to properly assess success and to determine if objectives have been achieved.

Furthermore, many of them lack a proper planning and evaluation model, which is essential in order to develop and implement successful change programmes.

Few policy instruments are based on a good prior analysis of the situation and the factors that determine if behavioural change can occur. Projects and programmes should always be based on such an analysis, even for smaller projects or if time is at a premium.

The few policy instruments that address behavioural change rely on advertising and promotional campaigns. While these are a useful element of behavioural change programmes, these hardly ever lead to behavioural change on their own. Advertising and promotional campaigns should be complemented with social marketing activities tailored to inducing behavioural change in target groups.

Monitoring and evaluation of programmes should be planned from the start, with adequate process and impact indicators and defined ways of measuring these. Too often, evaluations focus on the delivery of programme activities, and more attention should be given to measuring the impacts of activities on target group behaviour.

Behavioural change activities are also needed when introducing new regulation or new technology. Neither of these operates in a vacuum, and changes in consumer behaviour are almost always needed to reap the full benefits of new legislation or technology. Policy makers are advised to consider the full mix of instruments (legislative, financial, communicative instruments and infrastructural provisions) when introducing new policy.

CONCLUSIONS

The policy instruments that target the behavioural element of energy use are crucial to address unchecked carbon emission. Obviously changes at this scale alone will not be able to solve the climate crisis, however behavioural change is important because it has both a direct and an indirect potential to lower the emissions.

User-mediated energy use (significant source of emissions on its own) can be targeted to decrease emissions in the interim before sufficient policy or technology is in place. Additionally, changes at behavioural level can also advocate and promote the adoption of new regulation and the proliferation of environmentally conscious behaviours can advance sustainability beyond the individual to the institutional level.

The CCLabs experience and the trials clearly showed that technological advances supported by the use of ICT tools can greatly increase energy efficiency but that their implementation relies on a willing population who support adoption of these technological and design changes. To accomplish these shifts in perspective, the transition to a low carbon society must progress beyond incentives for technological solutions and toward more integrated approaches that incorporate human and social factors. Addressing the behavioural element of energy use is an essential part in creating an effective and holistic strategy for carbon reduction.

Final considerations

All the mentioned policy recommendations, as well the practical (even, in some cases, with a strategic force) recommendations coming from the lessons learned can be considered the most significant in light of the experience of THE4BEES project, besides the view and the expertise of the individual participants to the project. They are not, however, exhaustive and do not complete all possible suggestions. There are, indeed, some line of actions that represent, above all, the real added-value of the Project.

One of the most important lessons of this experience is, once again, the evidence that the economic issue is not the prevalent motivation in the field of energy efficiency and behavioural changes. Given a virtual hierarchy of incentives, profit is, generally speaking, not the first concern. This tends to confirm, consequently, that direct funding or subsidies should not be the only solution to support behavioural changes. Moreover, direct subsidies are subject to several selection bias. This lesson can also be translated in a policy recommendation. The role of local or regional governments is important to sustain growth and competitiveness and in promoting specific sectors but, especially when dealing with energy efficiency and behavioural changes, direct funding should not be the only instrument. As a rule, other kinds of policies and measures are needed at a first step. Improving the access to financing opportunities is a very important goal that comes, however, on a second moment.

According to this view, THE4BEES did something more than test, with its CCLabs, a model of support behavioural changes consisting in mix of scouting, coaching, mentoring, networking and international mobility. The experience also dealt with the so-called framework conditions: it helped in providing the enabling environment to develop ICT solutions by connecting people and creating awareness, increasing consensus and improving reflection of policy makers and stakeholders involved in the project.

In addition to the networking among the participants to the pilot projects, THE4BEES has connected actors that can provide a specialized know-how to accompany and support innovative people and ideas helping them to network, exchange experiences and best-practices. Furthermore, the dissemination activities and public events made it possible to reach also other actors not directly involved in CCLab activities, hopefully resulting in behavioural effects and longer term outcomes in addition to the immediate support to the collaborative projects born and improved during the CCLabs and to the production of partners' considerations and awareness about the policies to adopt. In fact, to stimulate the public attention, the catalyzing role of public governments, eventually aided from local agencies or other public institutions, is critical.

Other issues, like the importance of all the policies not directly targeted to energy sector, but aimed to enhance the general framework conditions, are food for thought. It is evident (although not taken for granted) that behavioural changes would be absolutely fostered by policies linked to the enhancement of the quality of life and to the attractiveness of the territory: for example, educational and training policies, urban renewal initiatives, alpine development or accessibility plans etc. Another relevant issue, more strictly connected with the themes of energy efficiency, concerns the benefit of establishing stable relations between SMEs and public institutions. This would provide a more effective two way communication channel that could help to better understand the needs of the SMEs (that is, to better define public policies). Looking at some successful experiences, the most reasonable recommendation is to involve, in a structured way, representatives of the enterprises within the public organizations (institutions, periodic roundtables, public agencies etc.).

In conclusion, we can say that the experience of THE4BEES project provided a wide set of useful indications for the next future, from the most practical and operational suggestions to approach energy efficiency and behavioural changes (by means of further EU funded projects, local initiatives and events, targeted calls for ideas etc.), to the more strategic policy recommendations. The latter are addressed to every political

dimension: some mainly to the local and/or regional level, other to the supranational, that is EU level. Actually, a systemic approach seems to be essential: a comprehensive view of the context should be included in the political dimension. On the one hand, making room for any relevant stakeholder and, on the other hand, raising awareness about the impact of behaviour in energy consumptions. This means that it is not possible to adopt a standardized set of policies and measures to be applied without any adjustment: they should be, within reason, “customized” in terms of targets (SME’s, individuals, schools, associations etc.) but also in terms of territories (urban, alpine, industrialized, sparsely populated areas).

