RE-GREEN Regional Policies Towards Green Buildings

Position paper on the Public consultation on the

GREEN PAPER on "A 2030 framework for climate and energy policies"

Contribution of the RE-GREEN - "REgional policies towards GREEN buildings" project supported by the INTERREG IVC programme

INTERREG IVC
INNOVATION & ENVIRONMENT
REGIONS OF EUROPE SHARING SOLUTIONS

UNIÃO EUROPEIA
Fundo Europeu de Desenvolvimento Regional

1. Framework: RE-GREEN project

The RE-GREEN: "Regional policies towards green buildings" project (http://www.re-green.eu) is supported by the INTERREG IVC Programme of the European Commission. The initiative is being coordinated by INTELI – Innovation Centre (Portugal) and has a partnership integrated by Building for the Future Limited (UK); City Architects, Dublin City Council (Ireland); City of Mizil (Romania); AGENEX - Extremadura Energy Agency (Spain); Local Energy Agency Spodnje Podravje (Slovenia); Municipality of Dabrowa Gornicza (Poland); Nordregio: Nordic Centre for Spatial Development (Sweden); Tartu Regional Energy Agency (Estonia); and University of Potsdam (Germany).

By promoting innovative policy solutions for green buildings, namely green public procurement, the project intends to support regions in renovate and retrofit public but also private buildings. This goal consists in considering the public authorities as key players in the process of moving to a green economy, acting as leading examples in introducing energy efficiency measures in public-owned buildings.

Besides management and coordination and dissemination and communication activities, the main actions of the initiative include the exchange of experiences oriented to the identification and transfer of good practices and the development of new policy tools. This comprises study visits to locations regarded as references in the scope of the project's objectives. Site visits are complemented with interregional workshops to debate lessons learnt and improve understanding on key practices. Additionally, regional implementation plans will be carried out by local/regional public authorities with the support of local/regional self-assessment reports and good practices guides as well as the organization of local/regional stakeholder seminars. Knowledge partners will participate in the project providing the conceptual and methodological framework and producing: policy recommendations at regional and local levels, innovative policy tools in green public procurement and a system of indicators on green buildings policies.

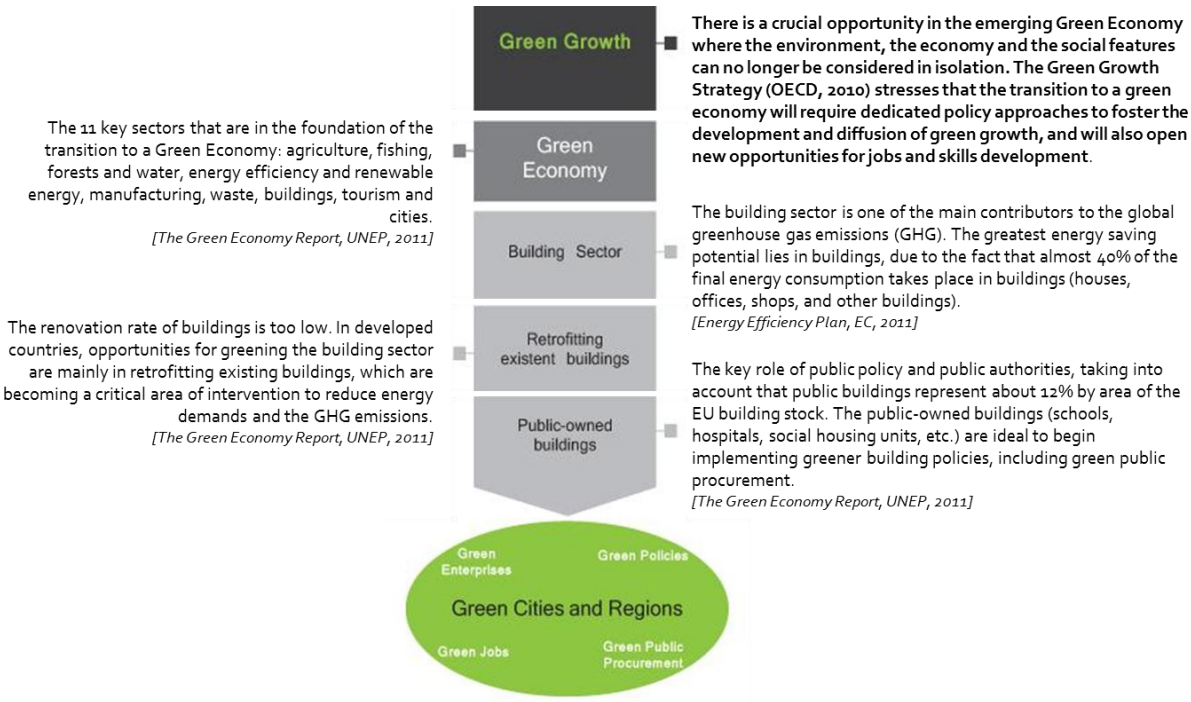

Figure 1 - RE-GREEN key themes

There is a crucial opportunity in the emerging Green Economy where the environment, the economy and the social features can no longer be considered in isolation. The Green Growth Strategy (OECD, 2010) stresses that the transition to a green economy will require dedicated policy approaches to foster the development and diffusion of green growth, and will also open new opportunities for jobs and skills development. The Green Economy Report (UNEP, 2011) considers 11 key sectors that are in the foundation of the transition to a green economy, which are: agriculture, fishing, forests and water, energy efficiency and renewable energy, manufacturing, waste, buildings, transport, tourism and cities.

The building sector is one of the main contributors to the global greenhouse gas emissions (GHG). In fact, the European Commission's 2011 Energy Efficiency Plan considers that the greatest energy saving potential lies in buildings, due to the fact that almost 40% of the final energy consumption takes place in buildings (houses, offices, shops, and other buildings). However, the renovation rate of buildings is too low. According to the Green Economy Report (UNEP, 2011) in developed countries, opportunities for greening the building sector are mainly in retrofitting existing buildings, which are becoming a critical area of intervention to reduce energy demands and the GHG emissions.

In this framework is important to highlight the key role of public policy and public authorities, taking into account that public buildings represent about 12% by area of the EU building stock. As outlines the Green Economy Report the government-owned buildings (schools, hospitals, social housing units, etc.) are ideal to begin implementing greener building policies, including green public procurement (GPP).

The GPP plays an important role in this context, because it is a procedure of public acquisitions where environmental considerations are taken into account, in order to reduce the

environmental impact caused by public sector consumption. Moreover, the GPP can be used to stimulate and enlarge markets for environmentally friendly products and services, influencing the whole supply chain and also stimulating the use of green standards in private procurement. The Public Procurement for a Better Environment report (EC, 2008) has identified ten key sectors for GPP, and construction is the highest priority sector.

Conceptual framework

It is particularly important for the RE-GREEN project to provide a conceptual framework that respects the understanding of what green building means to each of the engaged actors and partners; as failing to do so runs the threat of leading to vague and uncoordinated findings in the project. But equally important, it should also highlight the many complementary and cross-sector relationships that a wider notion of green building can have on resource efficiency and the promotion of green jobs. This utilises a planning-based recognition that once a building is constructed it is inseparable from its greater context of the existing built environment and associated infrastructure - particularly mobility systems.

RE-GREEN's conceptual framework thus aims to overcome the paradox of providing a concept that is concise and operational on one hand, but also mindful of the comprehensiveness of buildings, their connections with the built environment and the range of actors that are involved in their development. In doing so, the project also aim to add to the discussion on how multi-level policy can approach green building in new ways to help Europe achieve its unparalleled potential for resource savings. Figure 2 outlines the three integrated dimensions that account for the diversity of factors that need to be acknowledged by the conceptual framework: the green buildings dimension, the green urban systems dimension and the green governance dimension. Figure 2 also introduces a series of key factors, many of which relate to more than one dimension. Each of these factors helps to account for the comprehensive perspectives that are part of the overarching notion of green building.

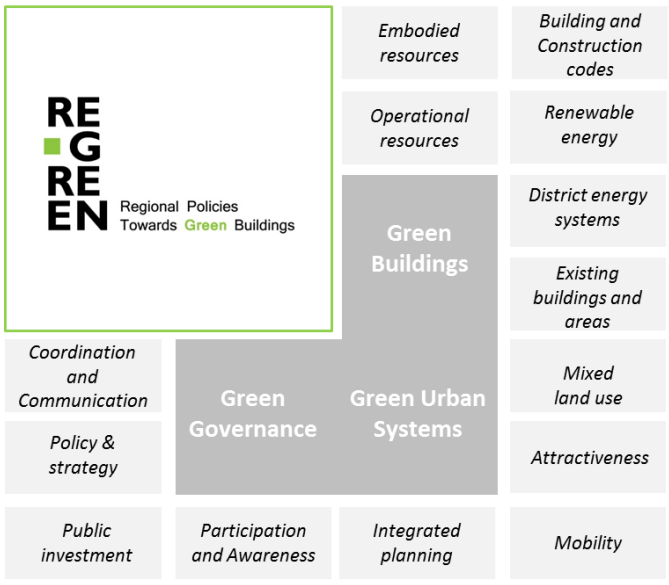

Figure 2 - RE-GREEN's conceptual framework

The **green buildings dimension** encompasses the technical interventions that improve the resource performance of new and existing buildings, as well as the policies that are used to enhance the use of these technologies. A nice definition of the technical interventions related to green buildings is provided in the EPA's (United States – Environmental Protection Agency) definition of Green building. They state green building as, "*the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. Green building is also known as a sustainable or high performance building*" (EPA, 2013).

The **urban systems dimension** expands on some of the factors included in the previous dimension. In doing so, it represents the following parallel understandings: that buildings are not constructed in isolation from supporting infrastructure systems, that *where* buildings are built has an effect on greenness, that the existing built environment represents the main potential for resource savings, and that the role of consumer demand has a key role to play in being able to develop a green building stock. These components are often wrapped together as part of the notion of comprehensive planning that considers the range of economic, social and environmental elements that need to be considered in order to produce a well-functioning, sustainable city.

Green governance acknowledges any aspect of coordinating and policy development that supports a greener built environment, with a particular focus on the role of public authorities. This includes cooperation between public and private stakeholders (i.e. developers and land use planners), between levels of government (i.e., multi-level policy formation) or within levels of government (i.e., horizontal communication within the operating departments of municipalities to create greener urban systems). Furthermore, it reflects the importance of management, oversight and coordination in terms of knowing which buildings are responsible for what levels of resource consumption (energy audits, particularly for publically owned buildings) and development strategies to ensure resource efficient urban systems. An effective governance system can help to define local needs for developing additional building stock, support the greening of publicly owned buildings, and how to create an engaging strategy for the support and encouragement of green building investment from private actors.

2. RE-GREEN Contributions

Key issues to address

By adopting green building policies and strategies oriented to the enhancement of energy efficiency and the use of renewable energies as a means of contributing to the development of green regions, RE-GREEN project intends to highlight the following ideas as the new 2030 policy framework for climate and energy efficiency is developing:

- Outline the value that a building-by-building approach can deliver in the greening of entire communities, cities and regions;
- Improve green building policies oriented to the enhancement of energy efficiency and the use of renewable energies as a means of contributing to the development of green regions within the new paradigm of the Green Economy;
- Empowering innovative policy solutions for green buildings, namely green public procurement and policies that time lag between financial costs and benefits of green building investments;
- Enable a green building transformation for both new and existing buildings in order to increase the change of patterns of production of the construction sector and generate interest and investment in new business markets related to green buildings (new green technologies, sustainable building materials as well as in design and engineering expertise).

General (4.1.)

Which lessons from the 2020 framework and the present state of the EU energy system are most important when designing policies for 2030?

The **EU climate deal for 2020 was not sufficiently ambitious**, and the renewables target was not high enough at a time when renewables badly needed a catalyst.

At the same time, there has been an underlying focus on investing in renewable energy production and on modernizing the energy system, but perhaps a lack in terms of promoting energy efficiency for end users – for instance, those in buildings. In short, the development of concrete, implementable policies promoting energy efficiency in buildings, energy end-use efficiency and energy services directives is simply missing. Therefore, **the discourse on energy efficiency in buildings is vague and more or less left to all Member States to develop their own approaches, which are not legally binding**. As a result, there is a little in the way of concrete, implementable, European level policy initiatives that promote more energy efficient buildings. This aspect was also reflected in a lack of attractiveness of energy efficiency as an investment option, and there were many reasons why investments in energy saving measures in buildings are often overlooked, rejected or only partially realized.

In order to produce a robust and comprehensive policy package, one that can put Europe on a track toward actually achieving a true low carbon economy, we simply **cannot neglect the unparalleled potentials of the building sector. Not only is the largest energy consuming sector, but it also has the greatest energy saving potential, and one of the biggest savings potentials in terms of GHG emissions.** But to achieve this, consistent European financial mechanisms are needed (especially in terms of promoting MS's to develop ESCO's), a clearer link needs to be made between EU energy policy and distribution of EU structural funds, and incredible development is needed in terms of the way in which we acknowledge and monitor progress towards building greener buildings.

While several Member States had some form of minimum requirements for thermal performance of building envelopes in the 1970s, the EPBD was the first major attempt requiring all EU Member States to introduce a general framework for setting building energy code requirements based on a "whole building" approach. Implemented in 2002, the Directive has been recast in 2010 (EPBD recast, 2010/31/EU) with more ambitious provisions. EPDB has become the main EU policy driver for buildings energy performance, however it only covers the field of energy retrofits in existing buildings to a limited extent. (by stipulating the implementation of energy saving measures in "deep renovations" of buildings, but without specifying what classifies as a deep renovations, nor what level of improvement should be made. As such, the EPBD at the very least must develop more targeted measures for fostering the deep renovation of the existing building stock.

In fact, the BPIE's "Europe's Buildings Under The Microscope" report emphasizes that while new buildings can be constructed with high performance levels, it is the **older buildings representing the vast majority of the European building stock, and the much greater potential for improving energy performance levels**. A substantial share of the stock in Europe is older than 50 years[1] with many buildings in use today that are hundreds of years old. Additionally, more than 40%[2] of our residential buildings have been constructed before the 1960s when energy building regulations were very limited. **The implication of this is simple – with Europe's existing buildings being responsible for such a high share of [unnecessary] energy consumption, collectively, we will never reach our long-term resource efficiency goals unless we improve their performance. Binding regulations on the performance of new buildings is rather straightforward, but we must be more creative in terms of promoting energy efficiency improvements in existing buildings.**

Therefore, green retrofitting should represent a new priority supported by EU initiatives under the energy and climate change scope. Major changes are expected in energy performance requirements as introduced by the recast EPBD which should also gradually converge to nearly zero energy standards. Generally, the differences between the member states are also reflected in the building sector, e.g. how many dwellings are in public or private ownership; how are the natural conditions or the need for new buildings or retrofits in the region (i.e. driven by demographic changes), and these differences have to be taken into account for the development of new policies.

Examining the requirements set by each Member State, it is clear that large variations exist in terms of the approach that each country has taken in adopting building energy codes. In some countries two approaches exist in parallel, one based on the whole building approach and the other one on the performance of single building elements. In other countries, the single element requirements act is in place without any mention of energy performance relating to the entire building. Therefore, **an appropriate level of enforcement compliance with building energy codes should also be of concern and a point of attention for policy makers**.

[1] *Europe's Buildings under the microscope*, BPIE, 2011.
[2] ibidem

Targets (4.2.)

Building energy performance needs to be significantly improved in order to reduce overall energy demand and, importantly, reduce carbon dioxide emissions in line with the cost-effective potential and Europe's GHG emissions objectives. In this sense, **RE-GREEN project supports a new deal on greenhouse gas targets** that is ambitious by imposing a 40% reduction on the 1990 levels by 2030, but which has the flexibility to let countries follow their most cost effective decarbonisation approach whilst having minimum targets in certain areas to ensure growth to give confidence to certain sectors, such as the construction sector.

Which targets for 2030 would be most effective in driving the objectives of climate and energy policy? At what level should they apply (EU, Member States, or sectoral), and to what extent should they be legally binding?

Have there been inconsistencies in the current 2020 targets and if so how can the coherence of potential 2030 targets be better ensured?

How can targets reflect better the economic viability and the changing degree of maturity of technologies in the 2030 framework?

How should progress be assessed for other aspects of EU energy policy, such as security of supply, which may not be captured by the headline targets?

- "The 2020 target of saving 20% of the EU's primary energy consumption (compared to projections made in 2007) is not legally binding for Member States, but significant progress in the comprehensive legislative framework at EU level, has nevertheless been made. While the recast EPBD will help to further drive progress in this area, the Commission's preliminary analysis suggests that with current policies the 2020 target will not be met, according to the following communication: "*The demands increased focus on building information and data on performance, as well as on the effectiveness of policy(…)Although* ***comprehensive evaluations of policies and progress towards targets in individual sectors such as buildings are increasingly necessary***";
- Other than a recommendation for increasing the renovation rate of existing buildings, the recast EPBD does little in terms of supporting the greening of existing buildings, which is the only way that member states will achieve short, medium or long term energy efficiency goals in the sector. Thus, it is clear that binding renovation rates for existing public buildings are really necessary and were considered in the EPBD recast stipulating that the "public sector" shall ensure a yearly renovation of at least 3% of its buildings' area, which comprises a whole building stock refurbished in 33 years (more than a generation). This **refurbishment rate is seen as an opportunity for not only achieving real energy savings, but also for kick-starting local economic development including the transition of "brown" building and construction jobs into "green" ones. This has a direct impact on promoting the green economy, especially among locally and regionally oriented construction firms which are by nature hard to engage from a policy perspective.**

- A common European wide system of accounting for the green and energetic performance of buildings, including sustainability, life cycle approaches and ecosystem services should be considered in the assessment of buildings and urban areas;
- **Green retrofitting is becoming a new priority supported by EU initiatives under the energy and climate change scope**. One of the most important European campaigns is the Renovate Europe Campaign that was initiated by EuroACE (The European Alliance of Companies for Energy Efficiency in Buildings). It has the aim to ensure an ambitious renovation rate of the EU building stock from the current rate of 1% to 3% by 2020, and to ensure that the aggregate result of those renovations leads to an 80% reduction of the energy demand of the building stock by 2050 (as compared to 2005);
- The **development of innovative financing schemes to support local and regional authorities in the adoption of wide renovation process for public buildings. This especially includes a clearer connection between EU energy policy and the distribution of EU Structural Funds. Again, the ability for public authorities to take a leadership role in kick-starting local green building economies cannot be understated.**
- The **building sector needs negotiated and binding national targets** for some kind of combination between emissions reductions and energy consumption reductions in the building sector. Emissions reductions alone will not trigger the necessary investment in some Member States given that some Member States have access to carbon free energy that supplies buildings, which gives them less incentive to invest in the building sector. This also supports development of a more common, tradable and liberalized energy market in the EU;
- The **creation of greener buildings** is not a clear economic sector per say (i.e. does not provide any tradable good or service that can be exported), even though there are clear economic rationales for retrofitting buildings. This **implies that the metric for the target should be in relation to absolute energy consumption rather than, for instance, energy intensity**.

Instruments (4.3.)

Are changes necessary to other policy instruments and how they interact with one another, including between the EU and national levels?

How should specific measures at the EU and national level best be defined to optimise cost-efficiency of meeting climate and energy objectives?

Which measures could be envisaged to make further energy savings most cost effectively?

- Binding renewables targets would provide a strong background for investments to be made, but consideration must be taken to ensure that they do not adversely affect the cost-effectiveness of delivery. A minimum binding renewables target with an 'expected' level set higher would be a compromise solution on this, as it would ensure investments are made in the renewables sector (which will support innovation, create

cost efficiencies and also result in product development) but would not put EU members states in the position where they subsidise inefficient markets and skew the supply chain.

- Expanding on the previous proposal, and given that vast territorial differences exist in terms of renewable energy potential, it would be useful RES targets also indicate in what types of regions that a focus on energy efficiency could be a better utilization of policy resources (for instance, energy efficiency in terms of transport, manufacturing, energy production, housing, retrofit, etc.). This directly implies that all **member states should consider all areas in order to meet their targets, and just because a low RES potential exists does not mean that great potentials exist in other sectors**. We would not recommend setting exact targets for each area, but it would be useful to **request each member state to document how much of their target they expect to deliver via each area**. This allows a flexible approach for each country depending on their circumstances and strengths but also provides some indication and confidence for each sector in the respective countries and allows investments and developments to be made.
- The roll out of ***Smart Meters*** should be considered as a necessary requirement across all EU countries in order to raise awareness amongst home dwellers of the energy they use and the cost of the energy. Often allowing the customer to see, via an easy to read monitor, exactly how much energy they are using, and at what cost they are using it, results in spurring people into making energy efficiency changes to reduce their energy use.
- The EU could look at the recently introduced *UK Green Deal* and *Energy Company Obligation* policy which allows householders to install cost effective energy efficiency measures at no upfront cost. This policy helps to reduce the barrier of a lack of upfront costs when considering energy efficiency improvements. The Green Deal is not funded by the Government, and therefore does not incur cost- so it is a cost effective way promoting investments for the greening of existing buildings. The framework has been created by the Government to allow the market to develop sales opportunities in this way. The Energy Company Obligation is an obligation but on the energy companies by Government to help the most vulnerable in society and to create carbon savings by subsidising 'hard to treat' measures such as solid wall insulation.
- **Consumer awareness, interest and participation** are vital in helping member states to achieve the 2030 target in a cost effective way. Awareness raising of cost effective ways people can improve their energy efficiency in cost effective ways and also promotion of what the state is doing to achieve its targets and why, is important to transparency and engagement.

2050 Pathways - UK

The UK's 2050 pathway tool (https://www.gov.uk/2050-pathways-analysis), is an online calculator which helps everyone engage in the debate of reducing GHG by at least 80% by 2050, relative to 1990 levels, in UK. The 2050 Calculator outlines, in minutes, months of work from technical experts. It can be used to engage a range of audiences on the challenges and opportunities of the energy system. It brings energy and emissions data alive, showing the benefits, costs and trade-offs of different versions of the future. It also allows exploring the fundamental questions of how the UK can best meet energy needs and reducing emissions.

- A section in the 2030 target document showcasing what other countries are doing should be considered, as **sharing and learning from other states experiences** between member states is important and could help to deliver targets more cost-effectively.
- On page 4 it says, *"The 20% GHG reduction target for 2020 compared to 1990 is implemented through the EU Emissions Trading System (EU ETS) and the Effort Sharing Decision which defines reduction targets for the non-ETS sectors, and its achievement is supported through EU and national policies to reduce emissions*." Regarding national measures, the BPIE's report (2012) on supporting energy efficiency in building includes this figure:

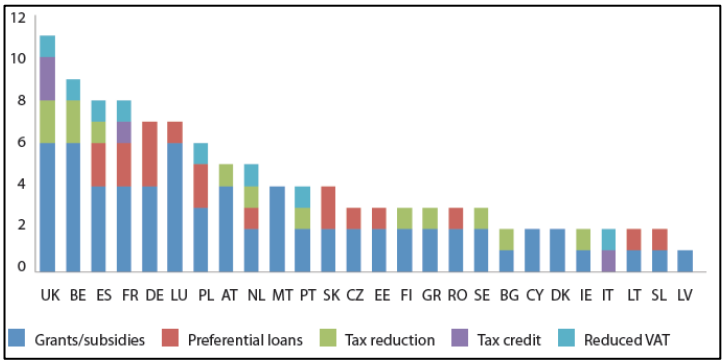

Figure 3 - Number of financial instruments in place supporting green building

Source: Maio, Zinetti & Janssen, 2012

However, many of these policies are not in place any longer, meaning that many member states do not have any current financial mechanisms for supporting green building redevelopment. It is essential that the EU help to ensure that financial policy mechanisms are made more consistent in both space (across member states) and time (duration of funding periods).

- The RE-GREEN conceptual framework builds on the energy efficiency potentials that can be created across various different sectors via improved planning and policy regarding urban development. This means that policy instruments improving resource performance in terms of land use will have important impacts on the energy consumed in the building and transport sector. As such, clear guidelines on minimizing land take, with the possibility of creating binding policies to completely limit additional land take after a certain year will support development of brownfield sites and existing, underused artificial surfaces. This will compliment energy efficiency in the building and transport sector by reducing car dependence for urban mobility and for supporting the regeneration of existing buildings and existing areas in cities.
- A **focus on building information**, for instance, a common system of accounting for the green performance of buildings is needed; also a reliable and continuous data collection process of the main characteristics of the building stock at EU level is necessary for policy making;
- **Policy provision must be simplified** – considering those at the local level who are responsible for obtaining funding and applying investments.

How can EU research and innovation policies best support the achievement of the 2030 framework?

The best way of implementing the 2030 framework through policies in the area of research and innovation is to implement programmes stimulating cooperation between different research actors, disseminating research results and promoting training and mobility of researchers.

2nd Green Building Masterplan – Singapore

The Singapore government first took the lead to promote environmental sustainability in buildings in 2005 by launching the BCA Green Mark Scheme. This green building rating system was developed and managed by the Building and Construction Authority (BCA), and form the work basis of Singapore's 1st Green Building Masterplan presented in 2006.

In continuity of the national future sustainability strategies, BCA launched the 2nd Green Building Masterplan (www.bca.gov.sg/GreenMark/others/gbmp2.pdf) in 2009, a roadmap that sets out specific key initiatives to achieve a truly sustainable built environment in Singapore by 2030

The masterplan encompasses several key initiatives, where it is interesting to highlight the holistic approach, which includes the promotion of R&D on green buildings, as well as pilot projects and the development of a training framework related to executive, academic and specialization training programmes to reinforce the capabilities of green specialists.

Capacity and distributional aspects (4.5.)

How should the new framework ensure an equitable distribution of effort among Member States? What concrete steps can be taken to reflect their different abilities to implement climate and energy measures?

- For an equitable distribution of efforts among Member States, it is necessary a **deep diagnostic analysis** that should describe the specificity of each Member State (wealth, industrial structure, energy mix, building stocks, carbon and energy intensity, exploitable renewable resources, social structure) and its capacity to contribute at general targets at EU level. The analysis should include also a review of what happened in the implementation of 2020 framework: were the previous objectives reached and, if not, why?
- **Setting fair and realistic national targets** is important to reach the final result. Even if some countries have the will and commitment, it is possible that low incomes make impossible to reach the objectives. It is also possible that some external factors, not identified at this moment, may appear during the next period and will affect the possibility to reach the targets.

What mechanisms can be envisaged to promote cooperation and a fair effort sharing between Member States whilst seeking the most cost-effective delivery of new climate and energy objectives?

Are new financing instruments or arrangements required to support the new 2030 framework?

- To promote cooperation the 2030 framework should maintain the sharing of efforts mechanism between Member States. The Cooperation mechanism that permits renewable energy produced in one Member State to count towards the target of another and flexibilities that Member States can apply to their 1.5% yearly saving targets according to the Energy Efficiency Directive should be also maintained.
- Setting **different targets for each Member States**, according to their territorial realities (i.e. demographics, building ages, current, levels of consumption, etc.) will promote cost-efficiency, as each state sets the most suitable measures to reach their objectives. Nevertheless, negotiated national targets on improving energy efficiency of the building sector (both in terms of new and existing buildings) are warranted based on the importance of the sector for reaching the EU's broader goals relating to energy, climate and a low carbon economy.
- A mechanism which could be used to promote co-operation and fair effort sharing would be **to require annual reports/conferences for member states** to discuss what policy mechanisms member states are using to achieve the targets and the progress towards the target. This would highlight best practise and give member states ideas about what other states are doing.
- Future energy policy needs stipulations for member states to support the development of ESCO's or other financing mechanisms that transfer capital costs for greening buildings toward the actual duration of the payback period. In other words, building owners should not have to pay for energy retrofits, nor should tenants face higher rents. Likewise, identification of best practices for undertaking these improvements to our existing building stock (regarding logistics, funding programmes, information campaigns, etc.) must be shared among relevant stakeholders in throughout the EU.
- New financing instruments are required to support the new 2030, especially because climate action objectives will represent at least 20% of EU spending in the period 2014-2020. These **instruments should address all kind of entities** (public administration, business sectors, private persons etc.) and all kinds of activities (investments, policy making, information, good practices exchanges, etc.).
- The development of the **EU Green Investment Bank** will be vital in providing support for member states to deliver their GHG reduction targets. The EU Green Investment Bank should be encouraged to give the best rates and support to member states to help them to meet their targets.