

Potential of Sustainable Urban Planning in Regeneration Areas



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Intelligent Energy  **Europe**

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1. Emerging trends of Sustainable Urban Planning in ENPIRE cities

In all ENPIRE participating countries, an evaluation took place of the current methodology on integrating energy in urban planning.

The investigation was meant to assess the main trends, as well as the potentiality of sustainable and efficient urban planning in our European context, in order to drive policies and actions at urban level. The outcome of the evaluation was the input for the first workshop on the methodology.

In addition, a number of qualitative questions were put to the ENPIRE city partners to assess the actual potential of sustainable planning in their restructuring areas and the conditions and barriers which have to be confronted.

In the following pages, the key trends have been extracted from the survey on the ENPIRE participating cities.

1.1 Trend n.1 the Building Energy Certification

The EU Member States are in the process of implementing energy rating procedures for buildings. EU States had to transpose the current directive into national law by 4 January 2006. At the time of the 2006 deadline, only two countries had more or less implemented the legislation. Now, at the end of 2008, in a significant number of countries, certification of buildings is up and running and an increasing number of inspectors is operating in the market. However, some of the new Member States are still facing substantial problems largely due to their past which has left them with a legacy of a highly inefficient prefabricated building stock. Most of these countries are making use of the additional three year period and are not going to fully implement before 1 January 2009.

Undoubtedly, the Building Energy Certification is a main driver for the incorporation of energy efficiency criteria in urban planning schemes both in new and in restructuring areas.

1.2 Trend n.2 the emerging Environmental Certification of buildings

The Building Environmental Quality Certification is a voluntary scheme designed to encourage businesses to market products and services that are kinder to the environment and for European consumers – including public and private purchasers – to easily identify them. This European Standard provides methods to express the environmental performance of buildings in a way that serves these purposes. It is based on standards that provide methods to calculate or measure environmental performance.

This European Standard is intended to be used:

- by developers of a procedure for building eco-label;
- by building authorities setting minimum requirements on the environmental performance;
- by building designers, building owners, building operators and building users to assess the performance of a planned or existing building and ways to improve it, and to express this performance.

The state of approval of a new EU eco-label criteria for buildings, combining the labeling of energy performance with other environmental aspects of buildings, is a "sustainability driver" that gets more and more consideration at the European level, still under-exploited in ENPIRE associated cities.

1.3 Trend n.3 energy upgrading of masterplans and sustainable building regulations

The primary overall objectives is to promote integrated and balanced growth of the urban centres with the preparation of Master Plan in which various land uses by way of optimum utilization of land are earmarked for identified purposes such as residential, commercial, public and semi-public, transport and communication, open space, agriculture and allied etc.

The effect of a master plan on a town plan is manifested by the way in which the basic land use solutions follow the solutions indicated in the master plan. The town plan regulates the type and volume of construction in an area covered by the plan. Thus, the town plan could be likened to a law that must be observed in construction activities.

Town planning is a continuous chain process, and it is revised through amendments.

From time to time, it has to be redesigned in its complex of rules and redrawn as a whole. The latest approval of city master plans, could be seen as a favorable condition for introducing energy and environmental factors in the urban planning methods and tools. The result for the ENPIRE associated cities gives a figure of very recent master plans approved or upgraded in the last few years: all after the year 2000. In such recent master plans, the opportunity of introducing the energy dimension should not have been avoided or mislead.

With a Sustainable Building Regulation, cities can influence the private housing market through their planning and development control decisions; in addition, with their strong connections to the local community, local governments are well positioned to facilitate a "whole of government" approach to housing outcomes.

The question concerning the year of approval of regional or local Sustainable Building Regulation can be considered as a breakthrough, however it provides a trend that ENPIRE cities and regions are already exploring and developing (3 over 7 Communities).

1.4 Trend n.4

revitalization of disadvantage neighborhoods through sustainable planning

Sustainable neighborhood revitalization is a growing trend in urban regeneration of disadvantaged neighborhoods. New planning processes, suitable to satisfy the complex needs of these neighborhoods, have been experienced by local administrations in last decade. Various local authorities, public and private partnerships have developed the means to meet community needs in improving living conditions, balancing the investment for urban regeneration, securing cohesion in the settlement structure, encouraging disadvantaged communities to undertake responsibility for development processes, opening new opportunities for stakeholders to take part in planning, addressing a wide spectrum of complex interdependent problems, ranging from poverty to lost cultural identity.

1.5 Trend n.5

The innovative design and methods for integrating energy in urban planning

Integrating energy in urban planning needs a number of ingredients and priorities, such as:

- encouraging and supporting local governments to prepare or review local energy guidelines "in house"; and by providing information, guidance, and comprehensive policy direction, to build local government capacity;
- developing standard energy definitions for housing, data sets, and performance indicators for use in local and regional level strategies;
- providing more information, guidelines, and policy direction to assist local planners implement energy objectives at the local level, including advice regarding strategies for community renewal and sustainable residential development.

Both energy guidelines and advice provided by planning consultants are included in most of the ENPIRE cities methodologies.

Local housing strategies have helped councils coordinate their activities and develop some tools, but implementation experiences have been varied.

1.6 Trend n.6

the market attractiveness of sustainable urban planning

What are the market tools to develop a sustainable urban planning? For ENPIRE partners the need for sustainable urban strategies is to make a clear statement of Local Governments housing related roles, while providing a strategic basis for comprehensive approaches across the whole housing market. A variety of tools are available to local administrations in the different Countries and a variety of intervention strategies, rather than a single approach, was advocated. The EU Countries, represented in ENPIRE, have designated the mandatory City Energy Plan, as a main market factor.

1.7 Trend n.7

The awareness of citizen representatives on sustainable development

ENPIRE partners are asked for what cities in each represented country do in connection to introducing a more sustainable energy supply system, in conjunction with urban/local planning in restructuring areas.

It has been often that effort of the authorities to direct significant public spending to such neighbourhoods brings about little structural change. Improved public areas and housing soon come to decay again, and achievements of expensive endeavour to alleviate social depression results quickly deteriorate very soon after the stream of public spending is curtailed.

Such an experience has led the public authorities in many European countries and cities to follow various alternative paths:

- Providing by national laws and regulations both criteria and guidelines for energy planning at the local level
- Managing by town rules all guidelines and public spending on isolated physical and social urban renewal,
- Limiting to Master-plan Commissions or Building Licence Commissions at city level to check and review design solutions aiming at sustainability of the neighbourhoods.

Results are giving a variety of paths, followed by the ENPIRE cities and counties, where National guidelines and laws are definitely prominent.

1.8 Trend n.8

The new European framework for local authorities

The main constraints to local government involvement in housing are: lack of community (and political) support; insufficient financial resources and staff expertise; legal uncertainty and barriers to using local planning mechanisms for affordable or more diverse housing types; poor state / local government collaboration.

A practical implementation plan, as well as clear benchmarks and performance indicators were also regarded as important (if often overlooked) components of effective housing strategies.

The new European framework helps local communities and cities in developing innovative action plans for energy efficiency and renewable energy development in urban areas. The recent Covenant of Mayors, lunched by the European Commission, in conjunction with the European Parliament, can be seen as a key driver, and already an important trend, towards the development of sustainable urban regeneration plans, creating cooperation among city administrators, local players, promoters and citizens.

2. Energy Performences in Buildings and Community Systems

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Czech Republic

Sources: www.buildingsplatform.eu

Legal Context	Setting of Energy Performance Requirements	Certification of Energy Performance of Buildings	Boiler and A/C Inspections	Training of Independent Experts	From the building stock to the urban level
<p>In the Czech Republic, the Ministry of Industry & Trade is responsible for implementation. The EPBD was transposed into Czech Legislation on 26 March 2006 by introducing amendments to the 'Act of Energy Management' Articles 6 and 6a which came into force on 1 July 2006.</p> <p><i>Adoption of a Methodology</i> The calculation methodology is based on the CEN Standards and the applicable Czech Technical Standards. Delivered energy needed under standard indoor and outdoor conditions is calculated. Energy consumption of a building is defined as amount of the actually consumed energy or the expected amount of energy needed to cover demands related to the standard use of a building. In particular HVAC, DHW, and lighting. The calculation process is basically divided into two stages:</p> <ul style="list-style-type: none"> • calculation of the building energy demand, or its parts – zones demands; it means the calculation of heat losses, and heat gains, required in each zone in order to maintain specified indoor conditions • calculation of energy consumption (building or parts – zones, according to the energy demands); it means the calculation of the energy required by the energy systems. Performance assessment tool NCT is available. 	<p>Energy performance of new buildings will be benchmarked with an equivalent existing reference building and will take into account the maximum U-values, the properties and the operation of the building's technical equipment and lighting. Proof of compliance will be needed to obtain planning permission for construction of a new building or renovation of an existing building. The requirements are the same for both types of buildings. The class of energy performance depends on the classification index. It displays the energy performance class of the whole building, or certain HVAC system (heating system, cooling system, DHW system, lighting of the building). The graphical part of energy certificate (energy label) shows the energy consumption level of building within the range of seven classes A – G. Required level of a building is C, if building falls under C class – it does not pass. Every class above C is strongly recommended for newly build or refurbished buildings. The best A class matches to low energy and passive buildings.</p>	<p>Certification has become mandatory for new buildings above 50 m² and renovated existing buildings (with a floor space exceeding 1000m²) as of 1 January 2009. Thanks to the energy performance certificates the investors or tenants will obtain verified information on energy demands of the building and a credible document showing costs of services and energy they must pay on top of the rent. As the price of energy is constantly rising at present, this is an important decision making comparative tool when choosing between more buildings available on the market.</p>	<p><i>Boilers</i> Inspections have been mandatory since 1 January 2007. <i>Air Conditioning</i> Inspection becomes mandatory as of 1 January 2009. The owner of heating installations with boilers of an effective rated output of more than 20 kW, which are older than 15 years is obliged to secure a one-off inspection of boiler and the internal distribution of heat energy latest before 1 January 2010. The owner of boilers with output above 200 kW burning fluid, gas or solid fuels is obliged to check regularly their efficiency according to specific legislation. The owner of the air-conditioning systems with nominal output more than 12 kW is obliged to carry out the regular inspection every four years.</p>	<p>Inspections are carried out by authorised specialists according to Act. No. 86/2002. Requirements:</p> <ul style="list-style-type: none"> • Six years relevant experience • An additional exam which consists of an theoretical part and an oral exam before a committee consisting of six members of various ministries 	<p>In the Czech Republic as well as in other transition countries from Central and Eastern Europe, the high market shares of district heating provide an excellent starting point for bringing higher efficiency and more renewables to the heating and cooling markets.</p> <p>The present restructuring schemes are focused on energy production only and hence do not necessarily provide sufficient incentives to trigger heating infrastructure investments. More holistic approach is needed. Investing in system improvements, finding suitable ways to combine energy efficiency with the use of renewables from the perspective of reduced fossil fuel use, market stabilisation and customer satisfaction should become overall national target. The changes in the restructuring schemes of urban areas are not limited by lack of suitable technical solutions. It is a matter of setting up suitable social, political and economical environment for the exploiting of the existing huge energy saving potential.</p>

Denmark

Sources: : www.buildingsplatform.eu | www.sbi.dk | www.ens.dk | www.ebst.dk | www.tjekskoleforbrug.dk

Legal Context	Setting of Energy Performance Requirements	Certification of Energy Performance of Buildings	Boiler and A/C Inspections	Training of Independent Experts	From the building stock to the urban level
<p>In Denmark, implementation is the responsibility of the Danish Energy Authority (Articles 3, 5, 7, 8 and 9) and the Danish National Agency of Enterprise and Construction (Articles 3, 4, 5 and 6). The EPBD was implemented in 2006 by a further tightening of existing strict energy requirements in the building regulations with the introduction of new labeling and inspection schemes.</p> <p><i>Adoption of a Methodology</i> The calculation method is described in SBi-Directive 213 'Energy Demand' which includes the software program Be06. The calculation core from this program must be used by all other software programs to ensure an identical calculation of buildings. Be06 comprises calculations for different types of buildings.</p>	<p>The January 2006 requirements imposed stricter criteria in accordance with Danish action plans for an increased 25% energy saving in new buildings compared to pre-January 2006 requirements. New buildings are covered by addendum 12 to BR95 and addendum 9BR-S 98. An energy performance target is required for all types of buildings heated to at least 15 degrees with exception of buildings used for commercial production and energy production. The target is based on the supplied energy needed for operating the building. There are separate targets for residential (excluding lighting) and non-residential (including lighting). An extra allowance is given to nonresidential buildings with high ventilation requirements and long operating hours or substantial hot water demand. For all types of buildings, the requirements also include two classes of very low energy buildings (Class 2 with an energy demand of 75% or 4,0 l/m², Class 1 with a demand of 50% or 2,5 l/m²). Existing buildings are covered by addendum 12 to BR95 and addendum 9BR-S98. BR95 stipulates the application of the 25% renovation rule in multi-family houses and nonresidential buildings whatever the floor area.</p>	<p>Certification is covered by Decree 1294 on the 'Energy labelling of Buildings' of 13 December 2005. Buildings need a certificate ('label'):</p> <ul style="list-style-type: none"> • When constructed • When sold or rented • Regularly (every 5 years) when exceeding 1000m² • Regularly (every 5 years) for all public buildings (all measures identified by the certificate, having a pay-back period of less than 5 years, have to be implemented within 5 years). <p>Existing buildings when rented or sold need to have a certificate which is no more than 5 years old. This also applies to the sale or renting out of individual flats in blocks of flats. Certification of apartment blocks is done on the whole building with an additional individual certificate for each unit. There are 14 different certification categories from A1 to G2. New buildings must at least achieve B1 to get a permit for use. Grade A1 and A2 are for low energy buildings (Class 1 and Class 2). The day-to-day running of the scheme is done by the FEM secretariat which is also where all certificates are lodged. The secretariat also carries out a continuous evaluation of the scheme, the quality of the certificates and the inspectors.</p>	<p>Legal basis is Decree 1296 of 13 December 2005 on the 'Inspection of Boilers and Heating Systems' as well as Decree 217 of 20 March 2006. <i>Boilers:</i> The inspection of boilers and heating systems were implemented on 1 September 2006. <i>Air Conditioning:</i> the inspection of A/C systems has become mandatory since 1 January 2008.</p>	<p>There are 3 types of energy inspectors:</p> <ul style="list-style-type: none"> • For single-family residential buildings • For multi-family residential buildings, commercial and public buildings • In-house inspectors for commercial and public buildings <p>Requirements:</p> <ul style="list-style-type: none"> • At least 5 years relevant experience • A successful completion of a special training • Compulsory participation in an annual 'refresher' course • A mandatory professional indemnity insurance (needs to be kept in force for at least 5 years after ceasing activity as inspector). 	

France

Sources: www.buildingsplatform.eu | www.logement.gouv.fr | www.legifrance.gouv.fr

Legal Context	Setting of Energy Performance Requirements	Certification of Energy Performance of Buildings	Boiler and A/C Inspections	Training of Independent Experts	From the building stock to the urban level
<p>In France, the Ministère du Logement et de la Ville is responsible for the implementation of the EPBD. The decree of 19 March 2007 (nr. 20007-363) deals with the implementation of Articles 4, 6, 7 (part 3) as well enforcement of aspects of Article 5. Legislative texts are available on: www.legifrance.gouv.fr</p> <p><i>Adoption of a Methodology</i> A framework has existed since 2000 based on RT2000. It was revised in 2005 and was approved on 24 July 2006. The calculation tool 3CLDPE (v15) is based on RT2005 and includes climatic conditions, position and orientation of buildings, indoor climate conditions, active solar systems and natural lighting. For new buildings, the methodology is being revised every 5 years and with every revision, buildings are required to consume 15% less energy. Energy consumption is either calculated according to one of the declared assessment methods or with an operational rating, based on invoices (consumption noted over the last 3 years).</p>	<p>The requirements for new buildings will apply to all building permits requested after 31 December 2007. The type and level of requirements are governed by the function of the type of building (residential, office buildings, schools etc.). In existing buildings, the new building components will need to fulfill minimum requirements. As of 2008, buildings over 1000m², which undergo major renovation, will have to meet global performance requirements. The certificate, which will be issued after completion of the building, will constitute proof of compliance required upon completion.</p>	<p>The implementation of the certification activity has been transposed into French legislation through the Building Code (amended by laws in 2005 and an ordinance in 2006). Certification is mandatory:</p> <ul style="list-style-type: none"> • As of 1 November 2006, when residential or non-residential buildings are sold (overseas areas excluded) • As of 1 July 2007, when buildings are rented • As of 1 July 2007 for new buildings with a building permit required. <p>Public buildings over 1000m² need to display a certificate as of January 2008. The cost of a certificate is between 150–250 Euro, depending on the type of building. It is valid for 10 years.</p>	<p>Measures to establish a regular inspection of boilers and A/C systems are still under discussion.</p>	<p>The requirements for experts are specified under Standard 17024. Experts need appropriate knowledge and competence, fluency in French, but no particular degree or experience is necessary. They need to pass an exam organised by a company or organisation accredited by COFRAC. (Comité Français d'Accréditation www.cofrac.fr).</p>	

Ireland

Sources: www.buildingsplatform.eu | www.sei.ie

Legal Context	Setting of Energy Performance Requirements	Certification of Energy Performance of Buildings	Boiler and A/C Inspections	Training of Independent Experts	From the building stock to the urban level
<p>In Ireland, the implementation of the EPBD is the responsibility of the Department of the Environment, Heritage and Local Government (DEHLG) (Articles 3 to 7) and the Department of Communications, Marine and Natural Resources (DCMNR) (Articles 8 & 9).</p> <p>The Directive was adopted into Irish law in 2006. Following a process of public consultation, the 'Action Plan for Implementation of the EPBD in Ireland' was published on 1 August 2006. This sets out the suite of proposed tasks, responsibilities and time scales required to achieve full implementation in a workable, cost-effective manner. Copies of the plan are available on www.sei.ie/epbd</p> <p><i>Adoption of a Methodology</i> The 'Dwellings Energy Assessment Procedure' (DEAP) is the Irish method for assessing the energy performance of new residential buildings. This methodology is adapted from the Standard Assessment Procedure (SAP) used for some years in the UK, and follows consideration, by independent consultants, of methodologies used in a number of EU Member States - which generally align with European standards (EN 832 and prEN13790) Copies of DEAP are available on: www.sei.ie/epbd/deap.</p>	<p>It is estimated that improvements in the energy performance of the residential sector will contribute 53% of the total national reductions required to meet the overall target of 20% reduction in CO2 emissions by 2020. To meet this target the minimum Energy Performance requirements of the National Building Regulations for new buildings have been set as follows:</p> <p>2005 Building regulations reference level 2008 40% improvement on 2005 building regulations 2010 60% improvement on 2005 building regulations 2012 Carbon Neutral homes 2019 Zero Energy</p> <p>Local authorities have also begun to introduce mandatory minimum energy performance standards for new dwellings within their own Urban Areas</p>	<p>Building Energy Rating (BER) Certificates are required as follows:</p> <p>New dwellings -since January 2007 New non-residential buildings - since July 2008 Existing buildings offered for sale or rent - since January 2009 Display of BER in public service buildings > 1000m2 - since January 2009 Feasibility assessment of alternative energy systems since January 2007 Energy efficiency of boilers and heating systems – since January 2008 Inspection of air-conditioning systems – since January 2008</p>	<p><i>Boilers</i> All new and replacement domestic oil and gas fired boilers must have a minimum seasonal net efficiency of 86% The 'Home-Heating Appliance Register of Performance' (HARP) database is a product efficiency database for homeheating appliances that are used in Ireland. and is based on the equivalent UK SEDBUK database. The HARP database is used for the following purposes:</p> <ul style="list-style-type: none"> • To provide registered BER assessors with specific product efficiency information which they can use when calculating BERs for residential buildings • To track compliance with the 'Boiler Efficiency Directive' • As a resource in the boiler efficiency promotion campaign which is being developed to comply with Article 8 of the EPBD <p><i>Air Conditioning</i> The inspection of A/C systems is covered by the Statutory Instrument No. 346 of 2006 of the European Communities 'Inspection and assessment of certain Air Conditioning Systems' regulations of 2006 and was adopted in June 2006. Inspections have become mandatory since January 2008.</p>	<p>Residential sector Building Energy Rating (BER) assessments are carried out by specially trained BER assessors, registered with Sustainable Energy Ireland (SEI). Assessors must have:</p> <ul style="list-style-type: none"> • a Level 6 construction related qualification or equivalent • received a Level 6 award in BER from a training provider that is registered with an SEI recognised national accreditation body • signed the BER Assessor Code of Conduct <p>For non-residential sector BER assessors, a requirement is being established that such persons be members of an approved "competent persons" scheme which meets the entry, operational, technical, legal, administrative and financial criteria specified by SEI as the issuing authority. An interim registration system is in place whereby technical qualifications, membership of a relevant recognised professional body and successful completion of an examination are required.</p>	

Italy

Sources: : www.buildingsplatform.eu | www.enea.it

Legal Context	Setting of Energy Performance Requirements	Certification of Energy Performance of Buildings	Boiler and A/C Inspections	Training of Independent Experts	From the building stock to the urban level
<p>In Italy, the implementation of the Energy Performance Building Directive is the responsibility of the Ministry of Economic Development, in collaboration with the Ministry of Environment and the Ministry of Infrastructures. On 19 August 2005, the Council of Ministers approved a first Legislative Decree, representing a general framework for the transposition of all EPBD articles, except article 9. On 29 December 2006, the Council of Ministers has adopted a new Legislative Decree regarding modifications and extensions. The official texts are available on the Ministry of Economic Development website: www.sviluppoeconomico.gov.it. The setting of technical guidelines, rules and general inspections is done at regional level whilst the actual inspections are coordinated at local level.</p> <p><i>Adoption of a Methodology</i> The basis for the calculation methodology is the 'Energy Performance Building Regulation' (EPBR). It is based on the CEN standards and applies to both new and existing buildings. The procedures are available from the Italian Standard Organisation. (www.uni.com)</p>	<p>On 29 December 2006, the Government revised the minimum requirements of all new buildings. Requirements are phased in according to the date of the building permit request:</p> <ul style="list-style-type: none"> • First stage: building permit requests after 1 January 2006 • Second stage: building permit requests after 1 January 2008 • Third stage: building permit requests after 1 January 2010 <p>The type and level of performance requirements for heating differ according to the function of the building (residential, non-residential). A proof of compliance must be made after completion of the building. Legal responsibility rests with the director of works. Control of the regulation is the responsibility of the municipality where the building is located.</p>	<p>The certification of new buildings started 30 days after publication of the new Decree on 1 February 2007. The certification gradually become mandatory for all new buildings, when property is transferred or when rented, in three steps:</p> <ul style="list-style-type: none"> • July 2007 for buildings above 1000m² • July 2008 for buildings below 1000m² (excluding single flats) • July 2009 for all flats <p>Moreover, since 1 January 2007, a certificate is required in order to have access to any type of public incentive for improving energy performance like:</p> <ul style="list-style-type: none"> • A 55% fiscal deduction over a period of three years for building efficiency measures • Interventions for public building energy renovation • The new premium rate programme for photovoltaic systems 	<p><i>Boilers</i> Inspection of boilers was introduced in Italy with law n. 10/1991. Legislation D. 311/2006 has modified some procedures, giving more responsibility to the regions and allowing a longer maximum intervention (4 years) for small gas boilers maintenance and control.</p> <p><i>Air Conditioning</i> The procedures for inspection of A/C systems are still under discussion as the three year derogation period was applied. The implementing decree for the inspection of A/C systems will be adopted by the Government before the end of 2008 and will come into force as of January</p>	<p>Experts carrying out the inspection of boilers need to be certified by ENEA or the regional municipalities. All inspectors need to undergo training and also need to be registered with regional organisations. (For example 'Casa Clima' for Bolzano, 'SACERT' for Milano, 'ECO ABITA' for Reggio-Emilia).</p>	<p>The Italian Law 10/91 provides that municipalities with a population exceeding 50,000 people must provide, within its General Master Plan General (PRG) a specific energy plan for energy efficiency and the use of renewable sources of energy. The provision of law, with all its limitations, offered a unique opportunity to integrate the energy parameter in the urban choices that administrations should implement to improve the urban environment and quality of urban life, in conjunction with other planning tools, such as those relating to municipal waste, waste water, water supply, traffic, urban standards, and building regulations. The requirement for the preparation of the Municipal Energy Plan covers 136 municipalities, with a total population of about 21 million affected people, 36% of all Italian citizens. More than 30 cities (25% of those bonds) have prepared the City Energy Plan, although the total affected population (around 8 million inhabitants) represents 35% of the total population of the 136 municipalities concerned.</p>

The Netherlands

Sources: www.buildingsplatform.eu

Legal Context	Setting of Energy Performance Requirements	Certification of Energy Performance of Buildings	Boiler and A/C Inspections	Training of Independent Experts	From the building stock to the urban level
<p>In the Netherlands, the implementation of the EPBD is the responsibility of the Ministry of Housing, Spatial Planning and the Environment (VROM). The Directive was legally implemented by the 'Decree Energy Performance of Buildings' (BEG) on 24 November 2006, followed by the 'Regulation on Energy Performance of Buildings' (REG) on 29 December 2006. The decree and the regulation both came into force on 1 January 2008.</p> <p><i>Adoption of a Methodology</i> The methodology for new buildings already complies with the current 'Energy Performance Standard' (EPN). Since 1995, part of the EPN for new buildings and major renovations of existing buildings is the calculation of a so-called 'Energy Performance Coefficient' (EPC). A general description of the current calculation method can be found on www.senternovem.nl/e pn (only available in Dutch). For existing buildings, the 'Energy Performance Advice' (EPA) methodology has been simplified and enhanced. More information can be found at http://www.senternovem.nl/energielabelgebouwen/index.asp (in Dutch only)</p> <p>In 2011 all calculation models for new and existing buildings will be unified in a single new method named EPG (NEN 7120: Energy performance of buildings).</p>	<p>In the current national building regulations, proof of compliance for new buildings and major renovations of existing buildings must be provided before completion of the building. Control of this legal provision is the responsibility of the local authority where the building is located. The main requirement is to comply with a given maximum value for the EPC. Currently this value stands at 0.8.</p>	<p>The guidelines for issuing of the certificate are part of the Decree 'Energy Performance of Buildings'. In the Netherlands the certificate is called 'Energie label' and is mandatory for all flats or houses rented or sold as of January 2008. The permanent certification for public buildings is mandatory by January 2009. The certificates are valid for ten years.</p>	<p><i>Boilers</i> For the inspection of the energy performance of boilers a -voluntary-tool has been developed: the 'Installation Performance Scan'. Maintenance and, if needed, advice to replace the boiler will be encouraged by means of public information. For large boilers (>100 kW), the Netherlands complies with current legislation in Environmental Law, mainly based on safety regulations. <i>Air Conditioning</i> Similar methods are under development.</p>	<p>Companies, not individuals, are accredited by certifying bodies. They need a valid NLEPBD-Certificate as described in BRL 9500. The requirement can be downloaded on www.issso.nl Experts will need to have a higher (building related) technical education and will need to pass a national exam (http://www.cito.nl/beno/ins/kbi/eind_fr.htm) to become an energy performance consultant. Registered certified companies can be found under www.kbi.nl</p>	<p>In The Netherlands many municipalities use the EPL method (energy performance of locations) to formulate low CO₂ emission ambitions for locations (new, restructuring) and to monitor plans during development. None of them were forced by legislation.</p> <p>At this moment the EMG (energy measures locations) is being developed as a supplement to the new EPG method. While EPG focuses on the energy use of buildings only, the EMG will focus on the energy measures outside buildings. Ideally the EMG should be ready for use together with the EPG in 2011.</p>

Spain

Sources: www.buildingsplatform.eu

Legal Context	Setting of Energy Performance Requirements	Certification of Energy Performance of Buildings	Boiler and A/C Inspections	Training of Independent Experts	From the building stock to the urban level
<p>In Spain, the EPBD was implemented by the Directive 2002/91/CE, of 16th December 2002, about energy efficiency in buildings and 3 Royal Decrees. These 3 RD are regarding to the 'Código Técnico de la Edificación' (CTE – Document HE published on 28 March 2006 and modified on 15th April 2009 – published on 23rd April 2009), the 'Regulations for Thermal Installations in Buildings' (RITE – published on 29 August 2007) and the 'Basic Procedure for Energy Performance Certification of New Buildings' (RD 47/2007 - published on 31 January 2007). The 'Energy Performance Building Regulation' (EPBR) is the responsibility of the Ministry of Housing except for the revised RITE and the actual certification which is the responsibility of the Ministry of Industry, Tourism and Trade.</p> <p><i>Adoption of a Methodology</i> EPBR is a national regulation and does not use CEN standards. It covers both new and existing buildings. The assessment method is based on asset rating. More information regarding the technical specification of the calculation procedure can be found in Annex 1 of Royal Decree 47/2007.</p>	<p>EPBR requires a minimum contribution of solar thermal and photovoltaic systems based on the type and size of the building. The requirements for both residential and non-residential new buildings set by the 'Código Técnico' came into force for building permits requested after 17 September 2006.</p> <p>The type and level of requirements depend on the climatic zone where the building is located as well as on levels of occupancy. The energy demand of the building should be lower than that of a reference building.</p> <p>Compliance checks needs to be performed before and after the works. Compliance with 'Energy Demand Limitation' (Document HE1) can be checked using either a simplified or a complex procedure. The latter requires the use of the free official software tool 'LIDER'.</p>	<p>Provisions regarding certification of new buildings have been adopted at national level with the 'National Basis Procedure for Energy Certification'. However, regional authorities may amend these by issuing more detailed provisions. Certification for all types of new buildings has become mandatory for building permits requested since 31 October 2007.</p> <p>There are 2 options for the calculation of the energy demand:</p> <ul style="list-style-type: none"> • A complex procedure that requires the use of the official software tool 'CALENER' (there are 2 versions: 'CALENER_VYP' for residential and small non-residential buildings and 'CALENER_GT' for larger non-residential buildings). • A simplified procedure that includes any validated procedure approved by the 'Certification Commission' added to the already existing simplified methodology for residential buildings based on 12 tables for the different climate zones. <p>For existing buildings a 'Basic Procedure' is expected to be ready and mandatory as of 2009.</p>	<p><i>Boilers</i> The inspection of boilers is already covered by RITE. They take place every 2, 4 and 5 years depending on the type of fuel used and the capacity of the boiler. Inspection of the whole facility installations is performed every 15 years.</p> <p><i>Air Conditioning</i> The inspection of A/C systems is also covered by RITE. They take place every 1 and 2 years depending on the capacity of the system. Inspections of the whole facility installations is performed every 6 years. The costs of the inspections are borne by the final user.</p>	<p>Inspections of thermal installations have been carried out by experts for years because of safety regulations. For the EPBD, an additional training of 2-3 days is required. Mainly architects and engineers are involved in the certification process. The specific requirements depend on the respective regional authorities.</p>	

Annex 1 : Result of the Questionnaire

The Workpackage 2 is intended to provide the background information on various methodologies for integrating energy in urban planning, developed and tested in different European countries.

The outcome of the evaluation was the input for the first workshop on the methodology. An essential questionnaire was prepared in order to get relevant information on different scales:

Country

- Population
- Average Income
- New building rate year (% and m2)
- Existing Building refurbishment rate year (% and m2)
- Market for sustainable refurbishment
- State of approval of Energy Certification
- State of approval of Building Environmental Certification

Region / Town

- Population
- Average income
- New building rate, based on approved new planning for more than 10000 m2 floor area (% and approx. m2)
- Existing Building refurbishment rate based on approved regeneration planning involving more than 10000 m2 floor area (% and approx. m2)
- Indicate how many urban plans are yearly managed in your case study region, based on more than 10000 m2 equivalent floor area, where specific planning guidelines both on new and existing building stock can be adopted
- Estimate the total floor area of such urban plans where specific guidelines can be adopted
- Year of approval of the most recent upgrade of the town master plan & regulatory scheme
- Year of approval of town sustainable building regulation, if any

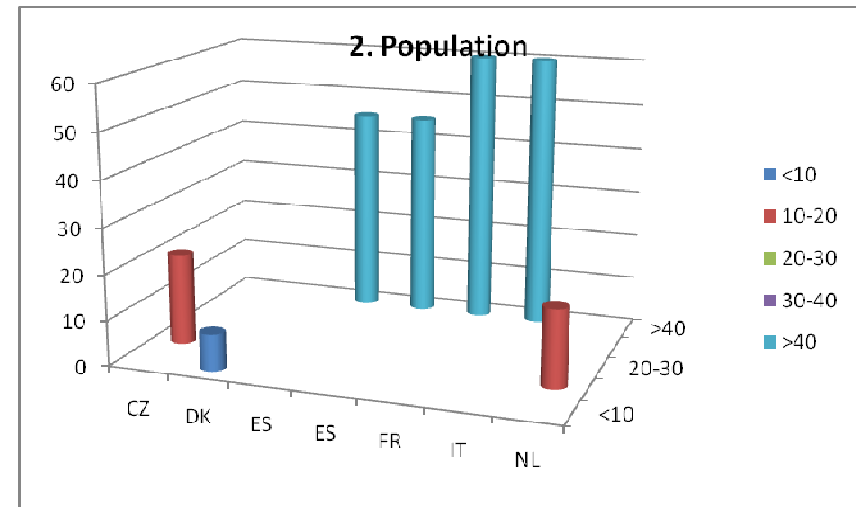
In addition, a number of qualitative questions were put to the ENPIRE city partners to assess the actual potential of sustainable planning in their restructuring areas and the conditions and barriers which have to be confronted.

The results of the survey conducted on the ENPIRE participating cities are reported in the following tables.

ENPIRE: National and Country Level

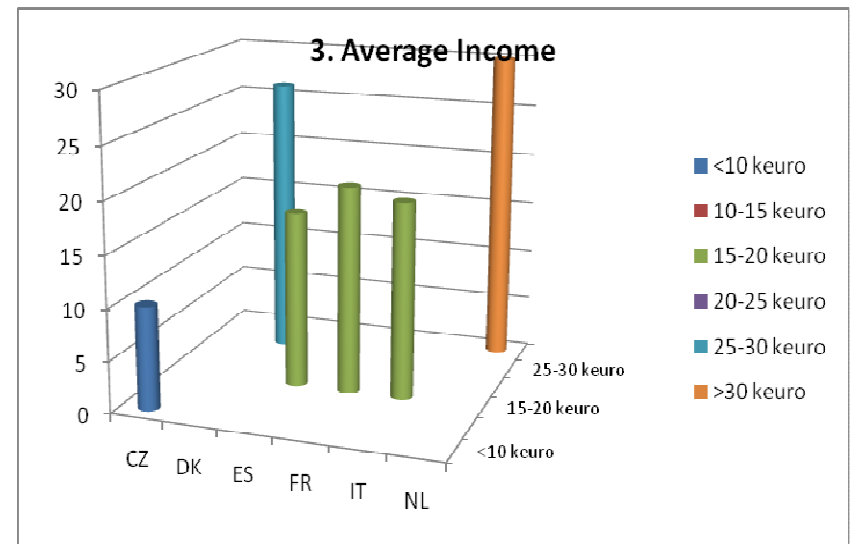
2. Population

The figure gives an essential information on the level of population of the different countries, represented in ENPIRE Project. Values are based on Eurostat figures, and summarised in a bar chart.



3. Average Income

The average per-capita internal gross product of the 6 countries represented in ENPIRE is summarised in the following bar chart. This figure can be considered an indicator on the economic situation, although average, to be taken into consideration for local energy rehabilitation investments.

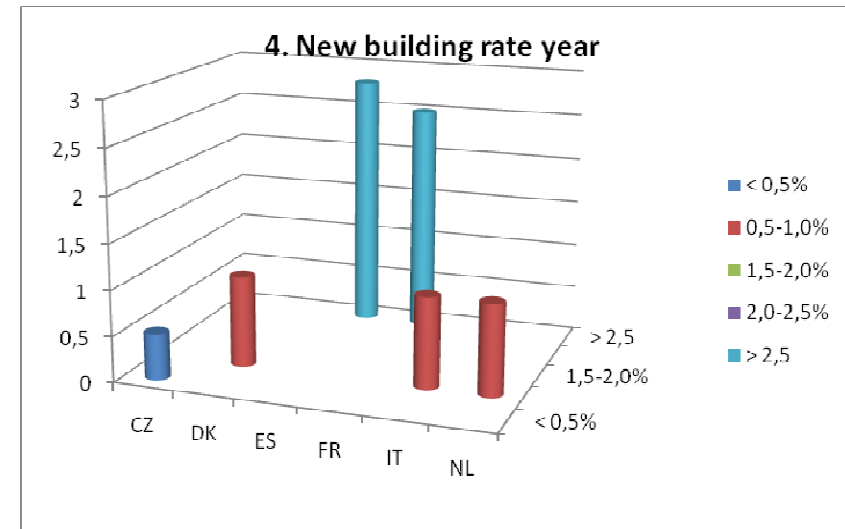


4. New building rate year (% / m2)

To this category belong:

new house building: houses completed by or for housing associations, local authorities or private developers for below market rent or low cost home ownership; houses completed for market sale by private developers.

The overall housing surface (m2) has been estimated. The figure refers to the housing gross floor area, as defined by the building rules, for a recent available year.



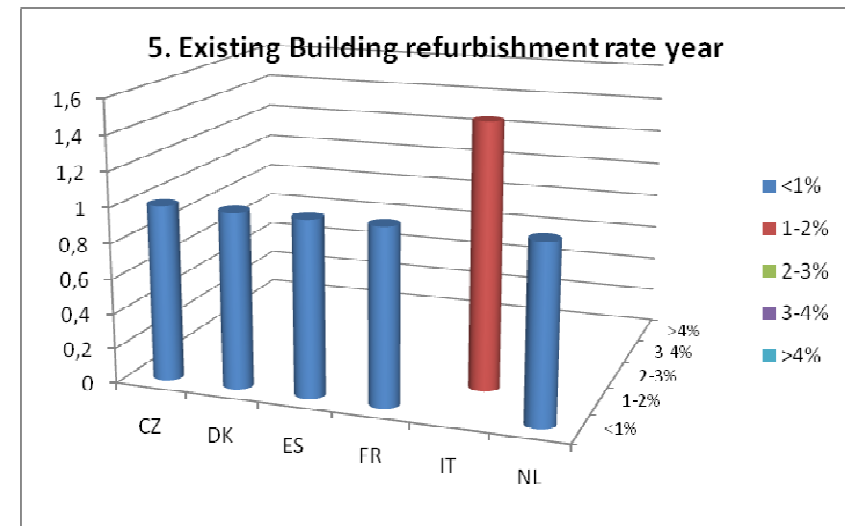
5. Existing Building refurbishment rate (% / m2)

To this category belong:

refurbishment: houses acquired by housing associations and refurbished either for rent or low cost home ownership. Refurbishment of private dwellings funded wholly or partly through national investment programmes.

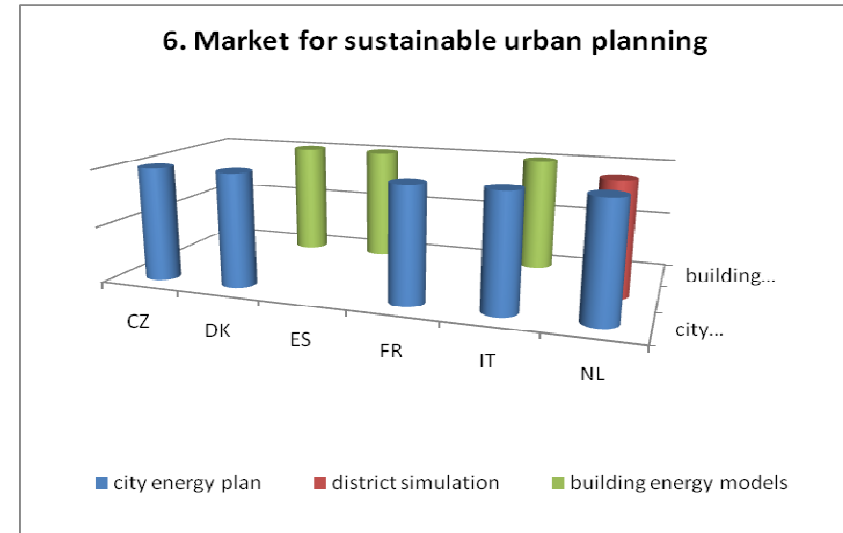
conversion: new dwellings created by conversion from non-housing to housing use.

The overall housing surface has been estimated. The figure refers to the housing gross floor area, as defined by the building rules, for a recent available year.



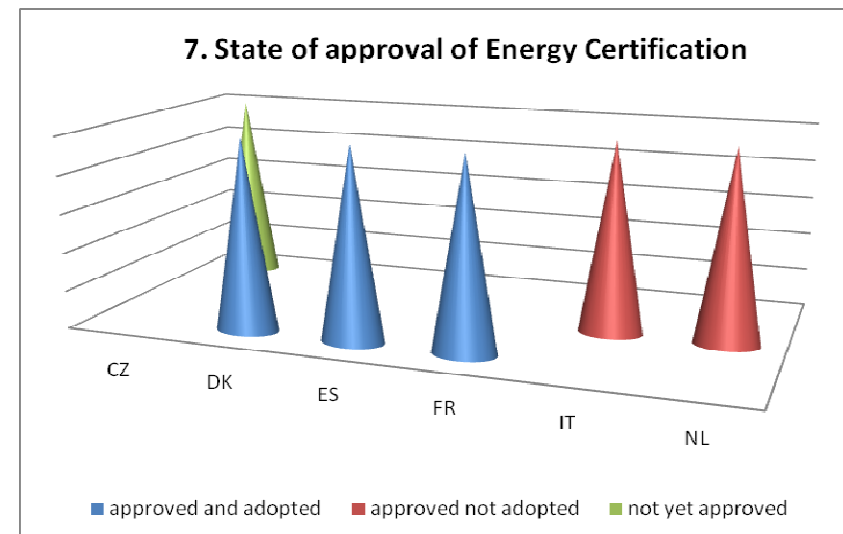
6. Market for sustainable urban planning

What is the market for sustainable urban planning? And what are the market tools to develop it? The need for sustainable urban strategies is to make a clear statement of Local Governments housing related roles, while providing a strategic basis for comprehensive approaches across the whole housing market. A variety of tools are available to local administrations in the different Countries and a variety of intervention strategies, rather than a single approach, was advocated. The EU Countries, represented in ENPIRE, have designated the mandatory city energy plan, as a main market factor



7. State of approval of Energy Certification

The EU Member States are in the process of implementing energy rating procedures for buildings. EU States had to transpose the current directive into national law by 4 January 2006. At the time of the 2006 deadline, only two countries had more or less implemented the legislation. Now, at the end of 2008, in a significant number of countries, certification of buildings is up and running and an increasing number of inspectors is operating in the market. However, some of the new Member States are still facing substantial problems largely due to their past which has left them with a legacy of a highly inefficient prefabricated building stock. Most of these countries are making use of the additional three year period and are not going to fully implement before 1 January 2009. The figure shows the EU member states, in ENPIRE, having approved and adopted the energy certification, while some are still under completion of the adoption process.



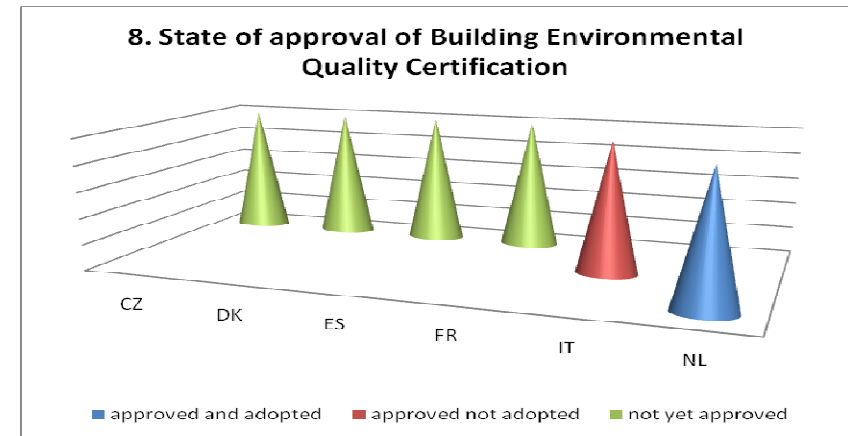
8. State of approval of Building Environmental Quality Certification

The Building Environmental Quality Certification is a voluntary scheme designed to encourage businesses to market products and services that are kinder to the environment and for European consumers – including public and private purchasers - to easily identify them. This European Standard provides methods to express the environmental performance of buildings in a way that serves these purposes. It is based on standards that provide methods to calculate or measure environmental performance.

This European Standard is intended to be used:

- by developers of a procedure for building eco-label;
- by building authorities setting minimum requirements on the environmental performance;
- by building designers, building owners, building operators and building users to assess the performance of a planned or existing building and ways to improve it, and to express this performance.

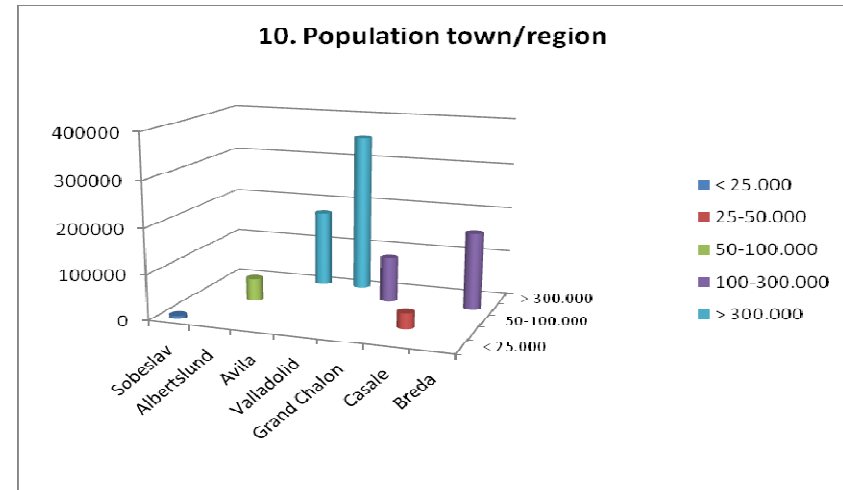
The state of approval of a new EU eco-label criteria for buildings, combining the labelling of energy performance with other environmental aspects of buildings, is a proposal that gets merits and consideration, but still under-exploited in EU Countries represented in ENPIRE.



ENPIRE : City and County Level

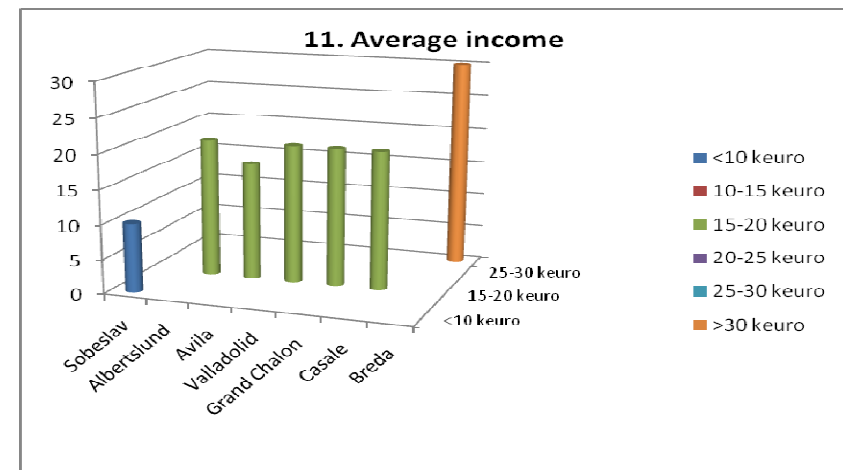
10. Population

The figure gives an essential information on the level of population of the different cities, represented in ENPIRE Project. Values are based on local administration figures, and are summarized in a bar chart



11. Average income

Like in the previous question, at the Country level, the average per-capita internal gross product of the 7 cities represented in ENPIRE is summarized in the following bar chart. This figure can be considered an indicator on the economic situation, although average, to be taken into consideration for local energy rehabilitation investments.



12. Year of approval of the most recent upgrade of the Town masterplan & regulatory scheme

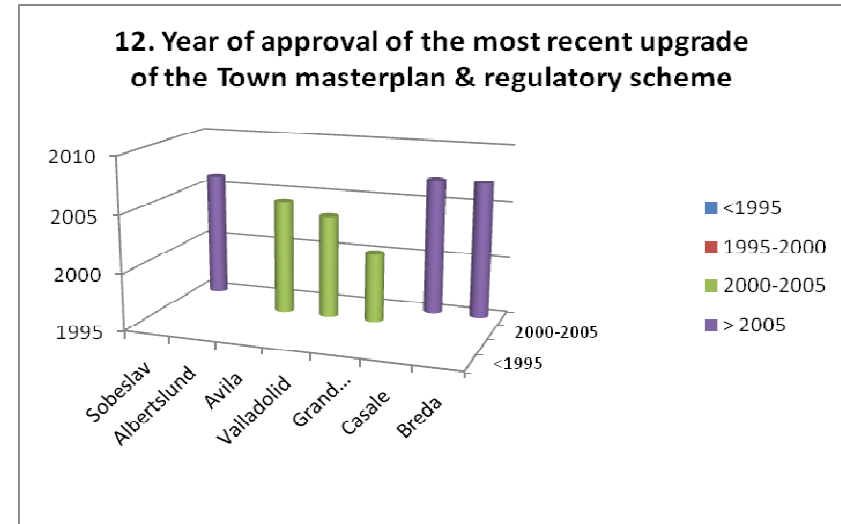
The primary overall objective is to promote integrated and balanced growth of the urban centres with the preparation of Master Plan in which various land uses by way of optimum utilization of land are earmarked for identified purposes such as residential, commercial, public and semi-public, transport and communication, open space, agriculture and allied etc.

Town plans are designed for urban construction. The effect of a master plan on a town plan is manifested by the way in which the basic land use solutions follow the solutions indicated in the master plan. The town plan regulates the type and volume of construction in an area covered by the plan. Thus, the town plan could be likened to a law that must be observed in construction activities.

Town planning is a continuous chain process, and it is revised through amendments.

From time to time, it has to be redesigned in its complex of rules and redrawn as a whole.

This question compares the cities belonging to ENPIRE under the latest approval of their master plans, as a condition where energy and environmental planning may, or may not, enter in the planning methods and tools. The result gives a figure of very recent master plans approved or upgraded in the last few years: all after the year 2000.

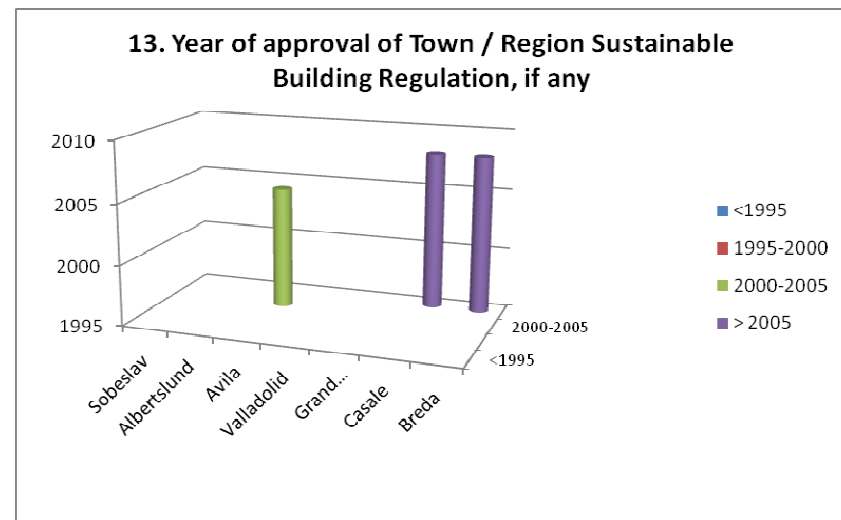


13. Year of approval of Town / Region Sustainable Building Regulation

Integrating housing policy objectives with the urban planning responsibilities of local governments is central to sustainable urban development. With a Sustainable Building Regulation, Regions and Cities can influence the private housing market through their planning and development control decisions; in addition, with their strong connections to the local community, local governments are well positioned to facilitate a "whole of government" approach to housing outcomes.

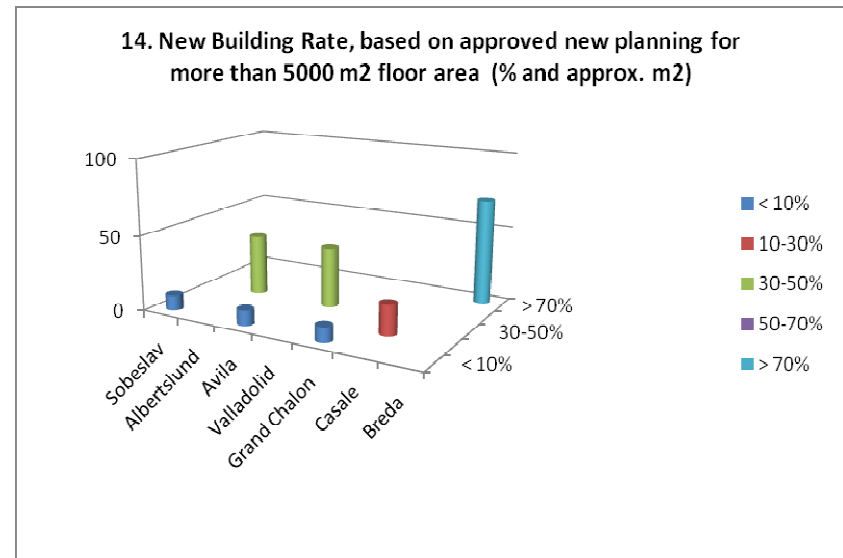
The question concerning the year of approval of regional or local Sustainable Building Regulation can be considered as a breakthrough, however it provides a trend that ENPIRE cities and regions are already exploring and developing.

The positive answer of three communities, over seven, is remarkable in such a context.



14. Integrated new and/or existing Building Rate

A reference year was considered, assuming to freeze a multiannual regeneration plan in annual steps. As assumption in the subsequent years the regeneration plans of a town/region have similar trends (in %). The minimum (5000 m2 floor area) was considered in order not taking into consideration private and dispersed building licenses, that might be based on sustainable planning, but rarely “concerted” with an administration. While this is the case, when the size is about 50-100 dwelling equivalent-floor-area, or more.

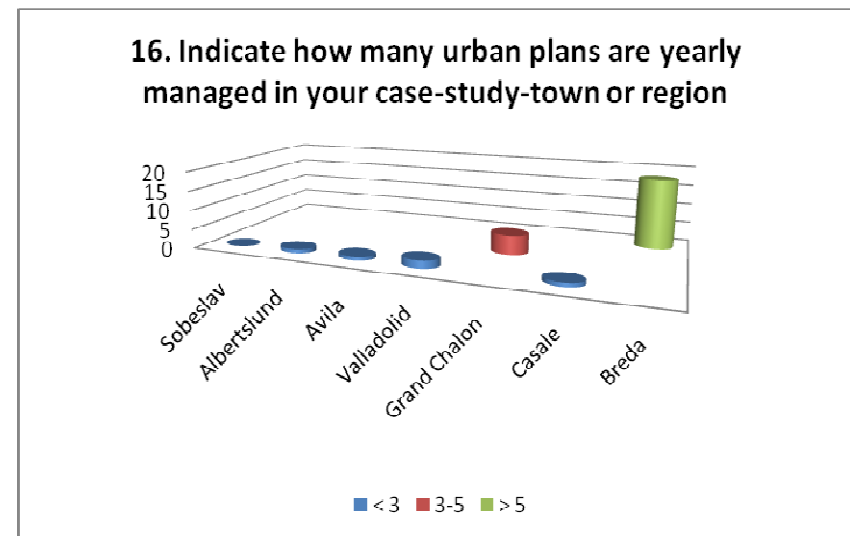


16. Indicate how many urban plans are yearly managed in your case-study

The question concerns the urban plans, based on more than 5000 m2 equivalent floor area, where specific energy-oriented guidelines, both on new and existing building stock, could be adopted.

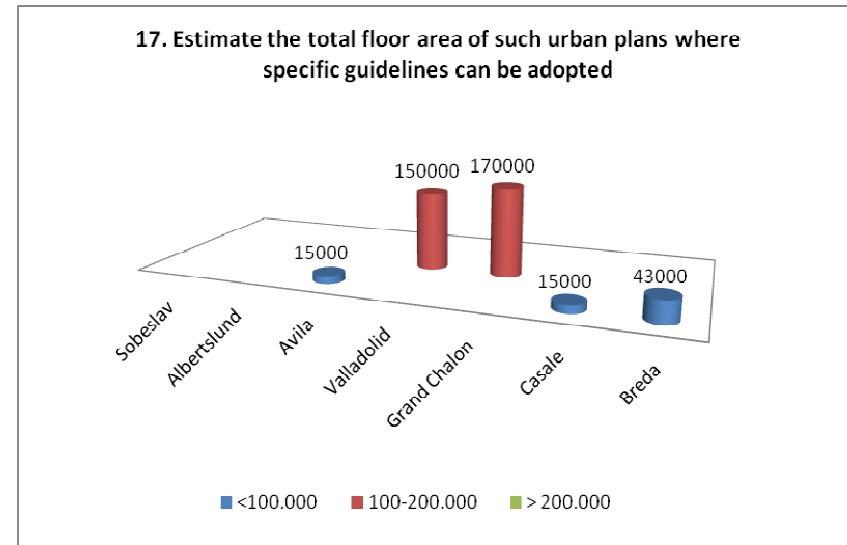
The result shows that only the City of Breda has a number of more than 5 urban zones per year, comparable in size and ambitions to the case-study entered in ENPIRE.

In most of the other cities, the ENPIRE case study represents the only occasion for developing an inspired sustainable strategy in restructuring areas.



17. Estimate the total floor area of such urban plans where specific guidelines can be adopted

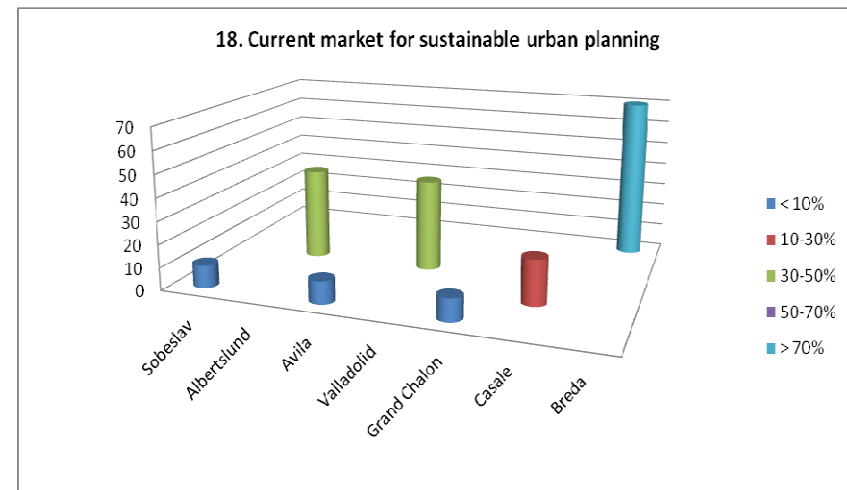
With "floor area" it is assumed that a mix of buildings is included, not necessarily only dwellings, but also other building types which are part of the integrated plan, such as office, school, etc.



18. Current market for sustainable urban planning

How can we ensure sustainable neighbourhood revitalisation in disadvantaged neighbourhoods? How to develop new planning processes, suitable to satisfy the complex needs of these neighbourhoods?

Various public and private institutions around the world strive to answer these questions, developing the means to meet community needs in improving living conditions, balancing the investment climate and securing cohesion in the settlement structure by encouraging disadvantaged communities to undertake responsibility for development processes, opening new opportunities for stakeholders to take part in planning, addressing a wide spectrum of complex interdependent problems, ranging from poverty to lost cultural identity.

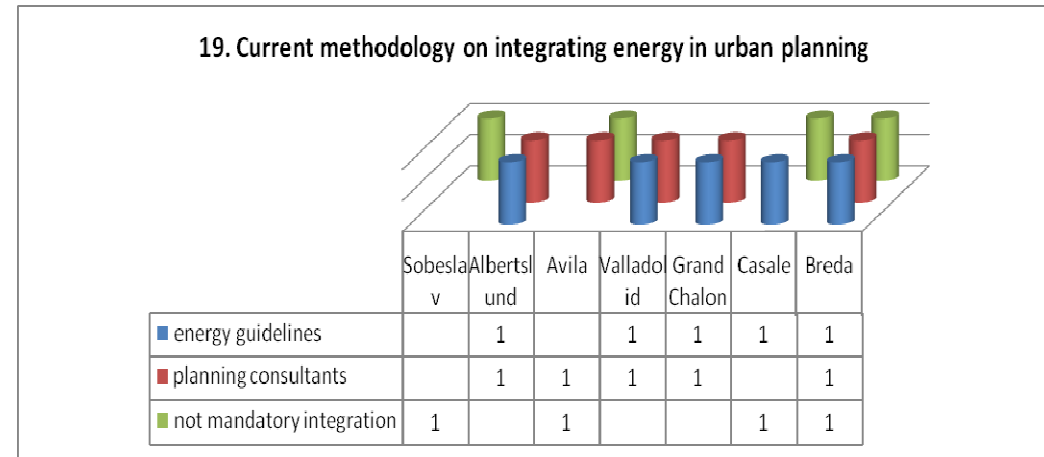


19. Current methodology on integrating energy in urban planning

Integrating energy in urban planning needs a number of ingredients and priorities, such as:

- encouraging and supporting local governments to prepare or review local energy guidelines “in house”; and by providing information, guidance, and comprehensive policy direction, to build local government capacity;
- developing standard energy definitions for housing, data sets, and performance indicators for use in local and regional level strategies;
- providing more information, guidance, and policy direction to assist local planners implement energy objectives at the local level, including advice regarding strategies for community renewal and sustainable residential development.

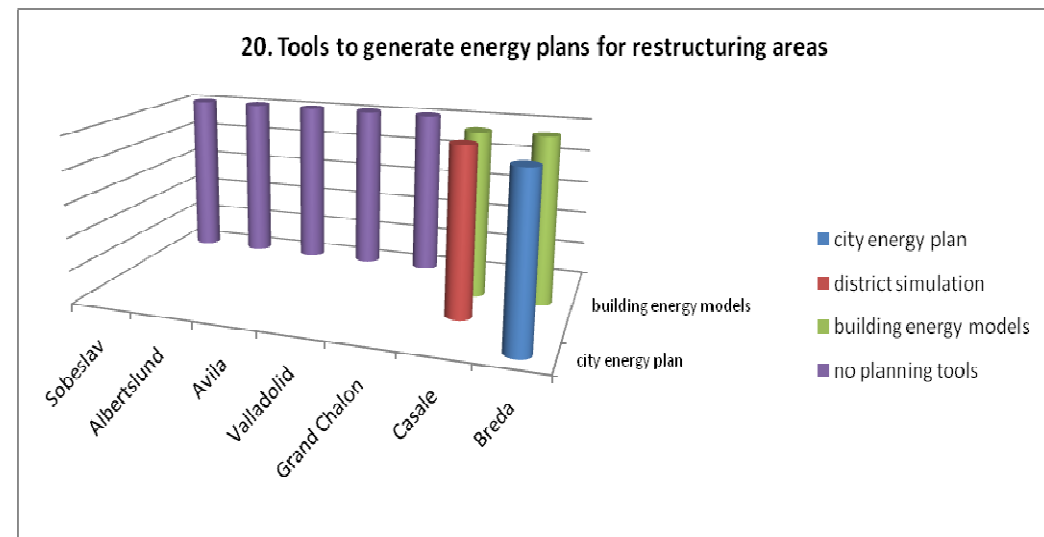
Both energy guidelines and advice provided by planning consultants are included in most of the ENPIRE cities methodologies.



20. Tools to generate energy plans for restructuring areas

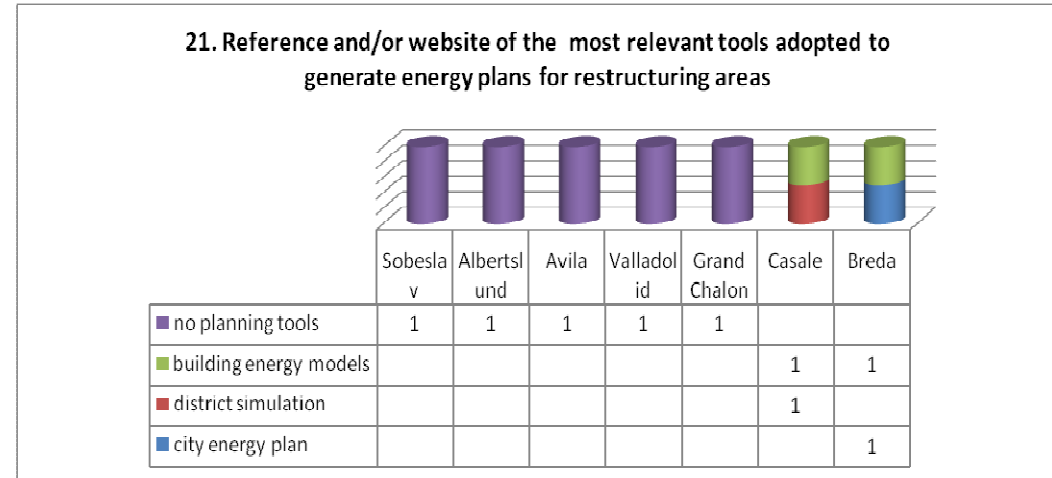
Local housing strategies (which analyse housing demand and supply, identify groups in housing need, and recommend future actions) have helped councils coordinate their activities and develop some tools, but implementation experiences have been varied.

The main constraints to local government involvement in housing are: lack of community (and political) support; insufficient financial resources and staff expertise; legal uncertainty and barriers to using local planning mechanisms for affordable or more diverse housing types; poor state / local government collaboration. In such a condition, the question concerning the tools to generate energy plans for restructuring areas



21. Reference and/or website of the most relevant tools adopted to generate energy plans for restructuring areas

A practical implementation plan, as well as clear benchmarks and performance indicators were also regarded as important (if often overlooked) components of effective housing strategies.



22. How the process for such energy plans is managed

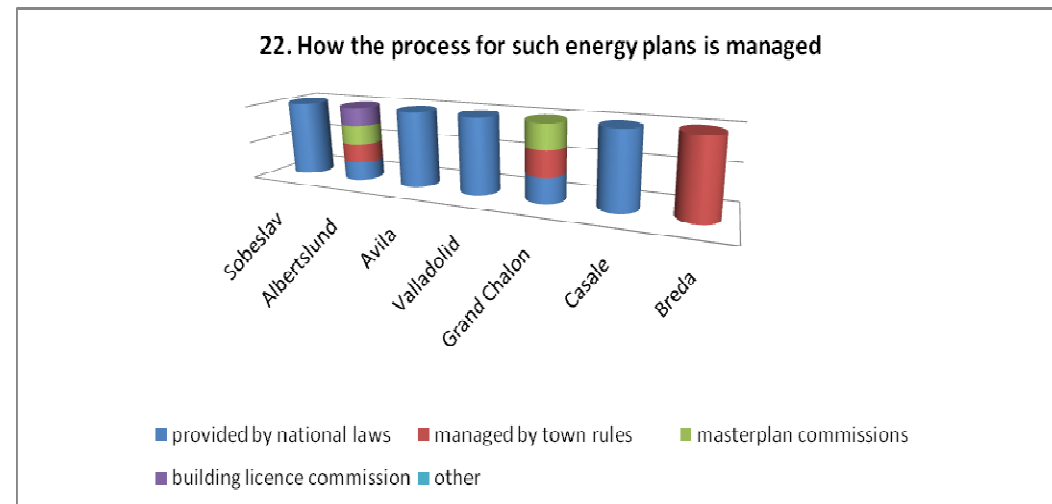
ENPIRE partners are asked for what cities in each represented country do in connection to introducing a more sustainable energy supply system, in conjunction with urban/local planning in restructuring areas.

It has been often that effort of the authorities to direct significant public spending to such neighbourhoods brings about little structural change. Improved public areas and housing soon come to decay again, and achievements of expensive endeavour to alleviate social depression results quickly deteriorate very soon after the stream of public spending is curtailed.

Such an experience has led the public authorities in many European countries and cities to follow various alternative paths:

- Providing by national laws and regulations both criteria and guidelines for energy planning at the local level
- Managing by town rules all guidelines and public spending on isolated physical and social urban renewal,
- Limiting to Master-plan Commissions or Building Licence Commissions at city level to check and review design solutions aiming at sustainability of the neighbourhoods.

Results are giving a variety of paths, followed by the ENPIRE cities and counties, where National guidelines and laws are definitely prominent.

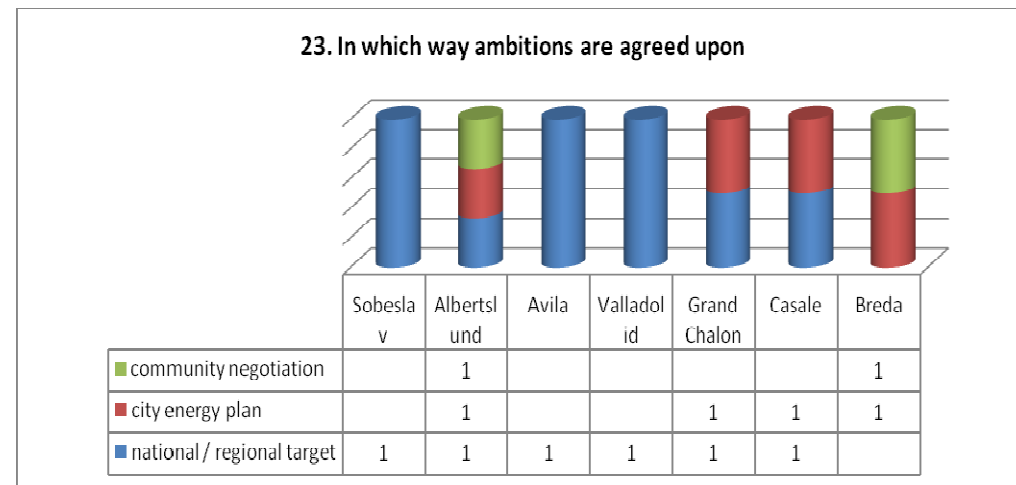


23. In which way ambitions are agreed upon

Therefore, the public sector has to demonstrate lasting commitment also in timely provision of necessary funding throughout the whole process of revitalisation, quickly reacting to changes in development of the programme. Otherwise, the revitalisation programme will be incapacitated by under-investment before any significant development of interest from the market.

Adopting transdisciplinary approaches and delegation of responsibilities to the neighbourhood level, obviously, requires a much broader outlook than currently prevalent at the political level in majority of the public authorities.

To change this fashion-driven attitude, another keyword here is criteria of success.



24. How the agreements are translated into real building plans

