2.1 Policies and objectives

Introduction

Spatial planning is a key instrument for establishing long-term, sustainable frameworks for social, territorial and economic development both within and between countries. Its primary role is to enhance the integration between sectors such as housing, transport, energy and industry, and to improve national and local systems of urban and rural development, also taking into account environmental considerations and the principles of sustainable development (United Nations, 2008).

Spatial planning has a regulatory and a development function. As a regulatory mechanism, government (at local, regional and/or national levels) has to give approval for given activity; as a development mechanism, government has to elaborate upon development tools for providing services and infrastructure, for establishing directions for urban development, for preserving national resources, and for establishing incentives for investment, etc.

Spatial planning aims to:

- Promote territorial cohesion through a more balanced social and economic development of regions, and improved competitiveness;
- Encourage development generated by urban functions and improve the relationship between the town and countryside;
- Promote more balanced accessibility;
- Develop access to information and knowledge;
- Reduce environmental damage;
- Enhance and protect natural resources and natural heritage;
- Enhance cultural heritage as a factor for development;
- Develop energy resources while maintaining safety;
- Encourage high-quality, sustainable tourism;
- Limit the impact of natural disasters.

Effective spatial planning also helps to avoid the duplication of efforts by actors such as government departments, commercial developers, communities and individuals. This is of great importance, as many of the above issues are of a cross-sectoral nature and therefore should be treated as such. Spatial planning is a public sector activity at all levels. Hence a clear distribution of responsibilities is needed between the different levels of administration.

Spatial Planning indicators can be grouped under the three broad categorisations below.

- Output indicators: data denoting the traits of direct realisation of an activity (such as metres square realised from a planned building)
- Result indicators: attributes indicating the attainment of the objectives or the failure thereof (e.g. number of new retail premises in case of an inner city renewal programme)
- Impact indicators marking the accomplishment of the policy (the comprehensive system of objectives) or elements thereof (e.g. increase in the ratio of retail in the GDP of a town, as an indicator of strengthening central function).
A similar logic is appropriate to formulating the relevant parameters of the objective system in case of energy efficient urban planning, with features fitting the given territory, town or objective.

In terms of drawing a link between spatial planning and energy, the rationale for planning in the field of energy is underpinned by the scientific consensus regarding climate change, the need to reduce carbon in the atmosphere and the correlation with the need to develop sustainable energy infrastructure.

Decisive climate protection goals were defined in the UN Framework Convention on Climate Change (Kyoto Protocol) by the international community of states in 1992. Arising from this is the so-called two-degree target, which is based in its current form on the information from the IPCC Third Assessment Report, which was revised in 2009. The two-degree target is a political definition of the prevention of a "dangerous anthropogenic interference with the climate system" as generally determined in the Framework Convention. The official recognition of the two-degree target came only in December 2010 at the UN Climate Change Conference in Cancún. In order to reach this target, global greenhouse gas emissions need to start decreasing between 2015 and 2021 and drop to a level of 40 to 48.3 billion tons in 2020. A reduction of 48 to 72 % compared with the year 2000 needs to be realised by 2050 (UNEP, 2010) please see: http://www.unep.org/annualreport/2010/

On this basis, the Climate Alliance of European Cities aims to reduce CO2 emissions by 10 % every five years and by 50 % per capita by 2030 (from 1990 baseline).

The EU cooperation movement "Covenant of Mayors", with many German signatories, commits to increase energy efficiency and support renewable energies and to reach the 20 % CO2 reduction objective by 2020. Baden-Württemberg's government defines a reduction of 30 % by 2020 in its Climate Protection Concept 2020 Plus. It even envisions an 80 % reduction of greenhouse gas emissions by 2050 (compared with 1990).


Planning Issues

In shaping the policies and objectives associated with spatial planning, the following specific factors need be taken into account:

- **Social aspects** (number, age structure, education level, employment and marital status of the residents & housing typologies);
- **Economic aspects** (characteristics of the local/regional & national economic activities, features of local enterprises as to main activities, turnover, type of organisation and employment data);
- **Environmental aspects** (protection of natural sites of carbon squesterisation, forests, wetlands etc)

In case of energy efficient planning, the energy consumption by the type should be enlisted for the following:

- Municipal and private built stock (flats and houses, commercial, service and office buildings, industrial
and other productive and storage facilities);
• Public and private transport;
• Local energy production, including renewable energies.

For comparison, emissions are to be analysed in CO2 equivalent greenhouse gases, thus the energy consumption of the area or town can be characterised this way. The planned interventions are to be reviewed also along the aforesaid grouping, the impact of which are also to be calculated to CO2 equivalent greenhouse gases. The result of the change in energy usage may consequently be described with a number or ratio. In the specific and operative planning, the costs, revenue and organisational background of the planned interventions may be indicated. In land use planning, such data are usually not present.

Methods

... for the integration of spatial planning and renewable energy technologies

... for the implementation of renewable energy technologies on local / regional level

... of stakeholder and citizen participation and

Selected planning tools and instruments

Financial Considerations

In strategic planning, the financial considerations of the plans and policies in respect of energy efficiency need to be reviewed in relation of the below:

• Expense
• Income
• Construction
• Operation.

Since reduction of energy costs is an essential part of the energy efficiency, it is an important planning consideration that the costs of the retrofit intervention should be covered from the reduction of operational costs within a short, limited time frame but maximum within ten years, like in economic investments.

Current experiences reveal that the above criteria are met in investments reaching about 50 per cent reduction in energy consumption. Higher rates of savings may only be achieved under the present (2013) conditions with costly investments, such as photovoltaic cells, heat pump, where the investment may only be returned in longer terms, that is to say, the return is rather uncertain. Subsidy granted to such actions may result in uneconomic investments that may occasionally be justified as state economic policy interventions. In contrast, the subsidy granted to research and development aimed at substantially reducing the present uneconomic prices of devices, thus improving their return rate, would be appropriate.

Energy conscious regional and urban development belongs facilitates long term economic returns. Accordingly, numerous innovative financial solutions have recently emerged fo
facilitate these objectives. In spirit of sparing public money, they belong to a leasing-like construction that is known in the international literature as ESCO (Energy Service Company) that appear in various forms. Under this, the supplier, having measured the energy situation of the consumer, comes to terms with the later as to the works to be carried out, undertaking the implementation (and its funding) that the consumer shall pay back from the savings in the agreed period and method. Upon expiry of the maturity of the investment, the consumer will have the whole savings resulted from the investment. In some variants, the supplier shares the savings in the repayment period, too.

The innovative financial method has gained ground in quite a few European countries; and the instruments of EIB, EU ELENA and JESSICA give thought to similar solutions.