

## Alessandra Fidanza

Architect and Urban Planner, SEA expert

Italy

[www.apgw.it](http://www.apgw.it)

[alessandra@apgw.it](mailto:alessandra@apgw.it)

## Cities and climate challenges

Introduction.....	1
Sustainability at the local level: climate change and energy .....	2
Energy efficiency at different scales: from the building sector to planning .....	4
SEA and SEAP .....	5
Conclusions.....	7
Bibliography .....	7

## Introduction

Planning is the framework for development, and, especially on a local level, it is the context where finding the way to ground strategic decisions and turn them into concrete actions. When such actions affect directly the lives of everyone, it is then possible that some changes towards a new “green economy” may effectively take place.

Green economy means to set up a general “sustainable framework”, where many sectors are involved at different scales: “policies, investments and spending towards clean technologies, renewable energies, water services, green transportation, waste management, green buildings and sustainable agriculture and forests” (UN-GEI).

This paper aims at focusing on the importance of considering climate changes and energy at the local scale, as a part of a general change towards the green economy.

*Climate change affects everyone. Its impacts are reaching beyond borders. Addressing climate change is central to the work of the United Nations. Yet everyone has a role to play in reducing the threat that climate change poses to peace, security and sustainable development (UN).*

These issues should be included into the planning processes, but at this time they are in most cases yet considered as a part of an overall “voluntary approach” towards a more comprehensive level of sustainability.

The use of the SEA mandatory system (especially in Europe with the 2001/42/EC SEA Directive) may result an effective way to integrate these considerations into planning, helping to drive local planning’s objectives towards a proactive climate changes/energy approach.

The thesis of this paper is to enhance the use of SEA as a tool of planning-design, to turn potential problems (climate changes risks, energy demand, economic crisis, etc.) into opportunities, for a green new deal under the general framework of “sustainability”.

## Sustainability at the local level: climate change and energy

There are many ways to describe the notion of “sustainability”, especially when this is related to urban contexts: social and economic sustainability of development models and urban patterns, sustainability balance of anthropization vs. conservation of natural environment, eco-friendly architecture and infrastructures, etc.

Currently, it is indubitable that sustainability embraces an additional meaning, in order to consider all the relevant aspects of *climate change and energy in urban environments*.

Urban areas and their immediate surroundings are widely acknowledged to be, on the whole, among the major contributors to GHG emissions, as well as the place where the effects of climate change are most strongly perceived by the population.

It has to be considered that, according to the United Nations<sup>1</sup>, the world is facing a very rapid process of urbanization, especially in developing Countries. The importance of making urban areas the target of the widest strategies for tackling climate changes and promoting large scale energy efficiency becomes easily understood.

Climate and energy-related concerns must become the core of spatial transformation management and urban and territorial planning: vibrant and livable cities rely upon harmonious development patterns, in order to create the *low carbon society*, foreseen by the 2008 Japanese G8 Presidency.

Urban planning must respond to these challenges by involving citizens in a new concept of economic development and environment-friendly lifestyles, in order to achieve, especially on a local level, the goals of both energy efficiency and climate change adaptation/mitigation: good urban design plays a key role even in the minimization of climate-related risks for the human environment.

The need of a new concept of urban planning has been highlighted by Mr. Ban Ki-Moon, Secretary-General of the United Nations:

“The major urban challenges of the 21st century include the rapid growth of many cities and the decline of others, the expansion of the informal sector, and the role of cities in causing or mitigating climate change. Evidence from around the world suggests that contemporary urban planning has largely failed to address these challenges.”<sup>2</sup>

Town and country planning are no longer a matter of supervising different “closed” systems: it has now become compulsory to correctly manage the relationship between “human” and rural environments, a fragile balance menaced by ever increasing anthropic pressures.

In “ancient” Europe, as well as in other Developed Countries, there is a strong quest for a new concept of urban planning, the domain of which includes several issues from multiple sectors (such as infrastructures, energy, waste management, landscape, etc.). All the relevant considerations for a single territory must be assessed “holistically”, to have the necessary depth and vision to address and shape its transformation.

“Today, planning is expected to be able to take future generations into account, especially in relation to infrastructure investment, environmental management and quality of life. The term ‘planning’ also implies a mode of governance, and is therefore, not just a neutral technical

---

<sup>1</sup> UN-HABITAT's Global Urban Indicators database, *Population in urban areas (% of total population)* indicator, which, for instance, foresees a huge growth of population by 2030 (source: UN-Habitat website, last accessed, January 2010).

<sup>2</sup> UN-HABITAT, *PLANNING SUSTAINABLE CITIES, GLOBAL REPORT ON HUMAN SETTLEMENTS 2009*, 2009

exercise, but rather shaped by values that are fundamentally concerned with making ethical judgements”<sup>3</sup>.

Through the application of Strategic Environmental Assessment (SEA) it is possible to effectively ground high-level sustainability policies and choices down to the local level, where there is a direct and actual interaction with human lifestyles and consequent population wellbeing.

From this particular point of view, SEA is considered a support tool, sufficiently flexible to be adapted to a wide range of planning circumstances.

A preliminary rough distinction must be made between two main geographic and socio-economic contexts: developing Countries and developed Countries.

Sustainability in urban planning, especially for developing countries, means firstly to understand the real needs of growth and well being of local communities in order to manage the unique local contexts and determine their carrying capacities accordingly.

Every choice affecting the morphology of a territory on one side, or investing local populations' lifestyles on the other, has to be correctly assessed prior to its implementation.

From this particular point of view, the comprehension and the management of urban morphology are crucial. For instance, the correct alternation between built volumes and open spaces directly affects the microclimate of a city, and therefore it may influence the rational (or “irrational”) use of energy, and the ways a society grows “using” urban spaces.

When green areas and permeable zones are converted into “urban” areas, a direct climate alteration can be observed, apart from the obvious changes affecting landscape and biodiversity.

It is crucial, more than ever in developing Countries, to enhance the development of new settlements having a concept based on respect for the natural environment, including the integration of landscape design in new housing (i.e. adopting local typologies and vernacular materials, preserving the social structure and population habits through a conscious space-planning, etc.).

The application of SEA criteria may lead to an overall benefit in the effectiveness of plans and programmes in Developing Countries.

According to the OECD<sup>4</sup>, in Developing Countries SEA can “improve decision making <...> and development outcomes by:

1. Supporting the integration of environment and development.
2. Providing environmental-based evidence to support informed decisions.
3. Improving the identification of new opportunities.
4. Preventing costly mistakes.
5. Building public engagement in decision making for improved governance.
6. Facilitating transboundary co-operation”.

Basing the concept of plans and programmes upon a set of objectives and related evaluation criteria, it is possible to make climate change and energy efficiency the core of the development of local actions.

SEA thus becomes the coherence framework in which every action finds its place in a more comprehensive sustainability strategy.

Through the application of EA techniques for the definition of localized strategies, **SEA can perform as a tool of sustainability**.

Conversely, when addressing climate changes and energy efficiency in Europe, it is always more urgent to implement strategies and plans for the recovery of previously developed

---

<sup>3</sup> Naison D. Mutizwa-Mangiza, *Why urban planning systems must change*, in: Urban World, Volume 1, Issue 4, UN-HABITAT 2009.

<sup>4</sup> *Applying Strategic Environmental Assessment, GOOD PRACTICE GUIDANCE FOR DEVELOPMENT CO-OPERATION*, DAC Guidelines and Reference Series, OECD 2006

lands, brownfields or even entire parts of cities suffering from a high level of degradation, rather than thinking about entirely new urban settlements<sup>5</sup>.

### **Energy efficiency at different scales: from the building sector to planning**

One of the core issues to consider in XXIst Century planning is energy efficiency on the large scale, not only in association with the housing sector (in Europe, see Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings), but as the inspiration for new urban planning, in direct connection with climate change-related considerations.

SEA applied to urban planning is the means to integrate all the abovementioned concerns into planning.

Many European and non-European Countries are currently carrying on a debate about the effectiveness of SEA to integrate environmental considerations into planning at the earliest stage possible, to achieve a thoroughly integrated management of the territory.

In some Countries, environmental sustainability related to climate change is brought down from the high level (policies) to the small scale (plans).

SEA helps this process by integrating specific objectives into the planning framework, and supports the systematic involvement of stakeholders during the entire planning process (thus augmenting the level of public-consciousness on development strategies).

“The participation of various stakeholders in urban planning is seen as key to success: governments at the national level can create the overall framework or environment for action, whereas local authorities can focus on the more concrete planning of mass transport and develop a strategy towards sustainable cities. The private sector can provide new technologies and products or services to urban areas”<sup>6</sup>.

When a SEA process is established, it is possible to set the sustainability and feasibility framework for plans hosting, for instance, large scale requalifications and renewal interventions, where the single *low-carbon* or *zero-emission* building, both public and private, may benefit from a *pre-sustainability* assessment made at the planning level, and become part of a thoroughly sustainable design.

The so-called *planning holistic vision* must respond to new requirements to tackle climate changes and in general integrate environmental considerations into planning. Well-conceived urban settlements and integrated relational systems, for instance, may optimize the mobility-demand, reduce GHG emissions of human settlements and, with the adoption of an overall sustainable land management, may even improve human health through a clever “new” urban planning.

The SEA approach to planning assists in the simultaneous consideration and assessment of many issues related to climate change and energy efficiency at the local level, and contributes to creating an integrated *vision*, covering the various aspects –such as housing, infrastructures, transport networks and their sub-systems, etc.- that must inform urban as well as rural sustainable development strategies, and their mutual relationships.

SEA helps to consider all these aspects during the preparation of a plan or programme.

---

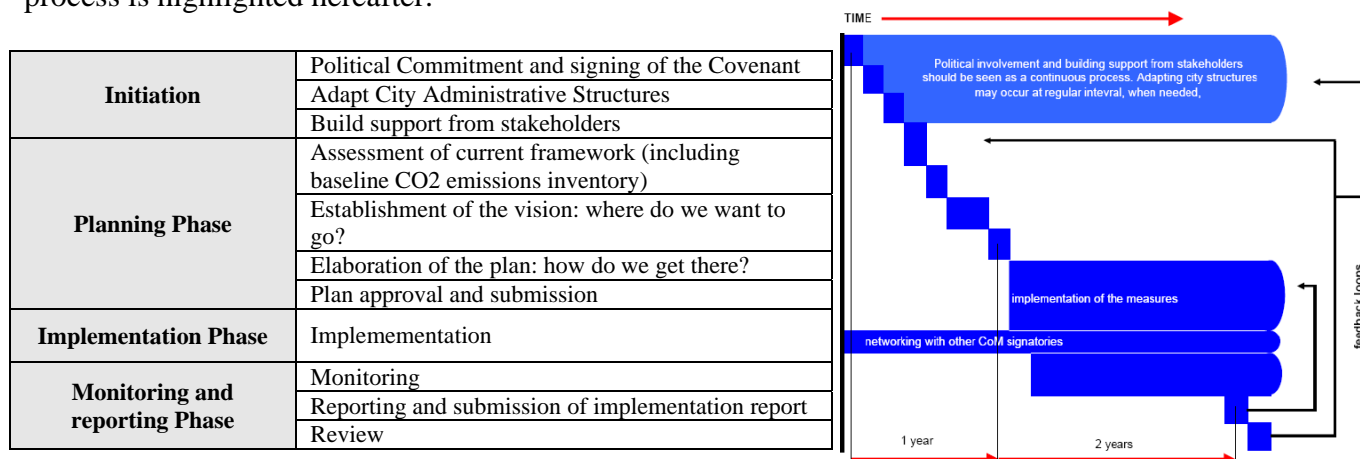
<sup>5</sup> With the exception of examples like the British “Eco-Towns” and the French “nouvelles villes écologiques”.

<sup>6</sup> UNFCCC, SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE Twenty-seventh session Bali, 3–11 December 2007

## SEA and SEAP

In Europe, the EC has launched the “Covenant of Mayors”, a voluntary affiliation of Cities with a common commitment to put in place “*action at local level within the competence of the local authority aimed at reducing the CO2 emissions and final energy consumption by end users*”<sup>7</sup>.

Cities are encouraged to adopt a “SEAP, Sustainable Energy Action Plan”, whose flexible process is highlighted hereafter.



*The SEAP Process: Phasing of different steps (from: Covenant of Mayors, Guidebook "how to develop a sustainable energy action plan (SEAP)", working version)*

SEAP guidelines will be subject to further revision, but SEAPs will include actions in the following sectors:

- Built environment, including new buildings and major refurbishment;
- Municipal infrastructure (district heating, public lighting, smart grids, etc);
- Land use and urban planning;
- Decentralised renewable energy sources;
- Public and private transport policies and urban mobility;
- Citizen and, in general, civil society participation;
- Intelligent energy behaviour by citizens, consumers and businesses.

All these topics are to be included into local plans, and the application of SEA is a successful means of integration of multidisciplinary concerns into planning.

The SEAP process can be easily associated with the SEA process:

SEAP	SEA
Initiation	Scoping
Planning Phase	EA/Environmental report
Implementation Phase	Implementation and

<sup>7</sup> Source: [http://www.eumayors.eu/home\\_en.htm](http://www.eumayors.eu/home_en.htm) : The EU is leading the fight against climate change as one of its top priorities. It has introduced the most ambitious targets of their kind in the form of the ‘20-20-20 by 2020’ initiative within the ‘Climate Action and Renewable Energy Package’. As a result, Member States are committed to curbing their CO2 emissions by at least 20% by 2020. The Covenant of Mayors takes this one step further through a voluntary agreement to go beyond these targets.

<b>Monitoring and reporting Phase</b>	monitoring
---------------------------------------	------------

SEAP Guidelines, whose working version is available on the Covenant of Mayors website, encourages the adoption of a SEA-like approach for the definition of the “plan of action”.

For instance, Cities are required to “set priorities and select key actions and measures”, similarly to when the SEA process is applied to a local plan.

Likewise, through the SEAP-based evaluation method, it is possible to make an “adequate selection of actions in a given time horizon”, “ranking the possible measures by importance in a table summarizing the main characteristics of each action: duration, level of required resources, expected results, associated risks etc. The actions may be broken down in short term actions (3-5 years) and long term actions (towards 2020)”.

SEAP suggests the assessment of “various scenarios, in order to identify the measures whose success is not scenario-dependent”, allowing that “such an evaluation is a technical exercise but it has definitely a political dimension, especially when selecting the criteria and their respective weighting. Therefore, it should be carried out in a careful manner, and be based on relevant expert and stakeholders' opinion. It may be useful to refer to various scenarios”.

The overall SEAP approach recalls the EU-SEA or even the UK-SA methods very closely, but at the same time puts the greatest emphasis on energy and climate changes at the local level.

It would be useful to manage both voluntary SEAPs establishment and mandatory SEAs applied to plans and programmes lying under the EU SEA Directive.

In order to make energy efficiency and climate changes more relevant to urban planning in Europe, there should be a sort of mutual influence between SEAPs frameworks and single measures and local plans and programmes.

## Conclusions

Energy and climate changes are relevant issues on a local level, and they are problems to be addressed proactively in order to turn them into opportunities to influence the transition to the green economy.

To reach this goal, it is important to integrate sustainability considerations into planning, through an SEA-like approach, which has arisen to be an effective tool of consistency and feasibility for delivering successful plans.

SEAs applied to plans and programmes will have to act also as a coherence framework and sustainability tool, to assess different scenarios and to drive the development towards a “low-carbon society”, the options of which on an urban scale include planning efficient city structures, controlling urban sprawl, developing efficient public transport, etc.

SEA techniques are the means to embrace all these challenges and consent the establishment of a proactive sustainability framework for building any future local vision, which takes into account climate changes and energy, seen as challenges to reach an overall “green-economy”.

## Bibliography

- *Applying Strategic Environmental Assessment, GOOD PRACTICE GUIDANCE FOR DEVELOPMENT CO-OPERATION*, DAC Guidelines and Reference Series, OECD 2006
- Fidanza Alessandra, *Strategic Environmental Assessment in International Cooperation*, in: Master GEP 2008, (Rome, 2008)
- Fidanza Alessandra, *Urban Planning and Climate changes: an international challenge for XXIst Century creative urban design*, in: Sustainable City and Creativity: Promoting Creative Urban Initiatives, Naples 2008
- JRC, *Guidebook "How to develop a Sustainable Energy action plan (SEAP)"*, 2009 working version available at [www.eumayors.eu](http://www.eumayors.eu)
- Naison D. Mutizwa-Mangiza, *Why urban planning systems must change*, in: Urban World, Volume 1, Issue 4, UN-HABITAT 2009
- UNFCCC, SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE Twenty-seventh session Bali, 3–11 December 2007
- UN-HABITAT, *PLANNING SUSTAINABLE CITIES, GLOBAL REPORT ON HUMAN SETTLEMENTS 2009*, 2009